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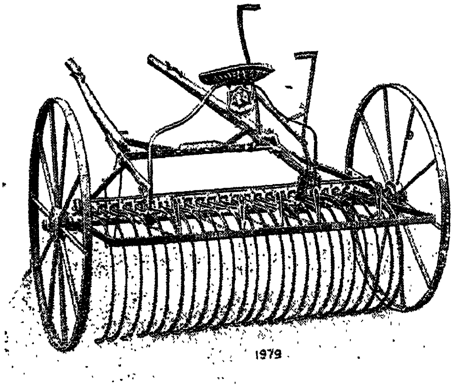

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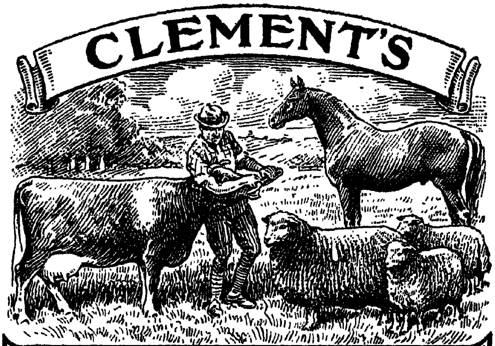

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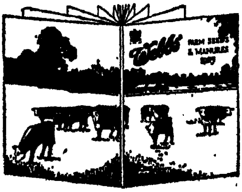

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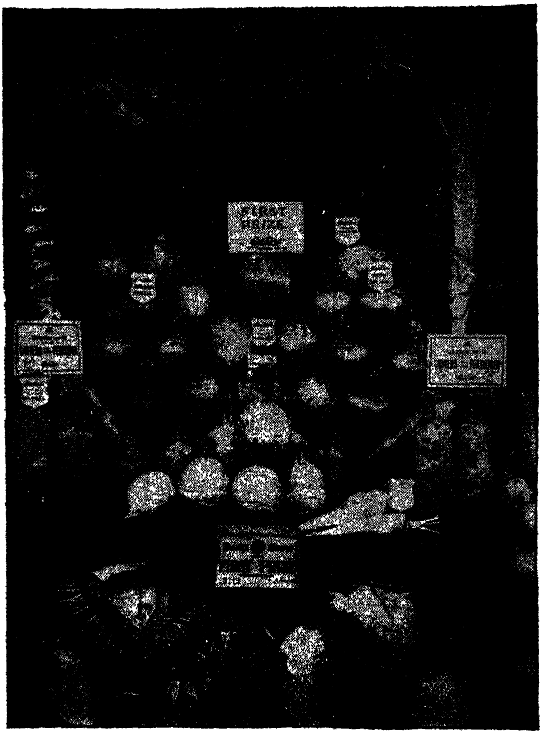

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JOURNAL

OF THE

ROYAL AGRICULTURAL SOCIETY OF ENGLAND

GROWTH AND ORGANISATION OF THE CANADIAN GRAIN TRADE

WITHIN recent years the Dominion of Canada has achieved so important a position in connection with the world's wheat production, and especially as a chief source of British food supplies, that some account of the progress made and of the organisation by which Canadian-grown grain, and particularly wheat, is produced, transported and marketed, cannot fail to be of interest to members of the Royal Agricultural Society and to readers of its JOURNAL. I shall attempt, therefore, to describe the various processes of grain production and movement from seeding in the prairie provinces to delivery on the European markets. My information is derived from personal experience in an official capacity, supplemented by facts collected from experts in particular departments.

Canadian grain crops comprise wheat, rye, oats, barley, flax, peas, beans, buckwheat, and maize or Indian corn; but only the first five possess any considerable commercial importance, and it is to these, therefore, that attention will be mainly directed.

IMPORTANCE OF CANADIAN GRAIN TRADE.

As showing the present importance of the Canadian grain trade, it is only necessary to state the fact that Canada, with a population in 1921 of 8,775,853, has lately become the world's second largest wheat-producing and wheat-exporting country, for the Canadian production and exports of wheat are exceeded in volume and value only by those of the United States. That this is so will be seen by the following table, which compares the production and exports of wheat, including flour expressed as wheat, of leading countries, six in the case of production and four in the case of exports during the years ended July 31, 1921–23.

PRODUCTION.

Country	1921		1922		1923	
	000 bush.	000 qrs.	000 bush.	000 qrs.	000 bush.	000 qrs.
1. United States	814,905	101,863	867,598	108,450	785,741	98,218
2. Canada .	300,858	37,607	399,786	49,973	474,199	59,275
3. India . .	250,357	31,295	366,987	45,873	372,661	46,582
4. France .	323,472	40,434	243,318	30,415	275,573	34,447
5. Argentina .	147,310	18,414	195,844	24,480	247,039	30,880
6. Australia .	129,089	16,136	107,263	13,408	125,832	15,729

EXPORTS.

1. United States	361,836	45,229	266,117	33,265	215,661	26,958
2. Canada .	167,215	20,902	185,770	23,221	279,365	34,921
3. Argentina .	88,057	11,007	117,960	14,745	139,229	17,403
4. Australia .	63,698	7,962	113,973	14,247	49,594	6,199

Thus, whilst during the first of the three years Canada occupied the third place as a wheat-producing country, production being exceeded by that of France for a record season of 1921, she was second in each of the two following years. As an exporting country the Dominion occupied second place for the two first years, but for the third year was actually first, her exports of 34·9 million qrs. exceeding those of the United States by 8 million qrs. There is little doubt that within a short time Canada will have become more permanently than at present the world's largest wheat-exporting country, for the wheat acreage of the United States is decreasing at the same time that its population and home requirements are increasing.

PROGRESS SINCE CONFEDERATION.

Before dealing with present conditions, it will be advisable to take a retrospective glance at the progress in the production of Canadian grain since Confederation in 1867, and especially to note how the incidence of grain-growing has shifted from east to west. In 1870, according to the first census taken after Confederation, the acreage under wheat in Canada was 1,647,781 acres. This increased to 2,366,534 acres in 1880, 2,701,246 acres in 1890, 4,224,542 acres in 1900, and 8,864,524 in 1910. In 1913, the year before the war, the annual estimates of the Dominion Government showed the acreage to be just over 11 millions.

Under the stimulus of the war this rose to 15,370,000 acres in 1915, whilst for 1923 the acreage reported as sown was 22,671,864. Another measurement of growth is afforded by comparison of the grain acreage per 1,000 of the population. Taking the two principal grain crops, wheat and oats, the acreage sown to wheat per 1,000 grew from 472 in 1870 to 1,906 in 1915, and to 2,528 in 1923. For oats the acreage per 1,000 was 826 in 1890, 1,457 in 1915, and 1,573 in 1923. Formerly the bulk of the wheat grown in Canada was produced in Ontario, but with the opening up and settlement of the prairie provinces the production of wheat in Ontario relatively to the rest of Canada has declined, whilst the prairie provinces have come to produce nearly all the wheat of the Dominion. Thus in 1870, 85 per cent. of the total wheat crop of Canada was grown in Ontario; this proportion fell to about 50 per cent. for the two census years 1890 and 1900, to 15 per cent. in 1910, and to less than 4 per cent. in 1923. In Saskatchewan the proportion increased from 4 per cent. in 1890 to 50 per cent. in 1910, 56 per cent. in 1917 and 53 per cent. in 1923. A similar shifting of the provincial incidence is observable in the case of barley and oats. At Confederation and in 1880 the production of wheat, barley and oats was almost entirely confined to eastern Canada, whereas the position now is that for 1923 more than half of the total wheat crop was produced in Saskatchewan, and all but 5 per cent. of the total was produced in the three prairie provinces. For barley, in 1923, 77 and for oats 68 per cent. of the total crop was produced in the prairie provinces.

Important, therefore, as may be the agricultural production of the Dominion as a whole, it is rather the western grain production that this article must chiefly describe, for out of the Canadian wheat production of 1923, shown to be 474 million bushels (59·27 million qrs.), not less than 452 million bushels (56·53 million qrs.), or 95 per cent., were produced by the three prairie provinces of Manitoba, Saskatchewan and Alberta, whilst 252·62 million bushels (31·58 million qrs.), or 53 per cent., were produced by the single province of Saskatchewan. Of oats the estimated western production in 1923 was 391·76 million bushels (48·97 million qrs.), or 69 per cent. of the Canadian total of 564 million bushels (70·50 million qrs.).

It is, however, since the beginning of the present century that the Canadian grain trade has had its most important development, and it was the opening up of the western prairies which began on completion of the Candian Pacific Railway in 1886 that made this development possible. Although the first grain shipment to Europe of Manitoba wheat was made in October, 1877, the first carload of western wheat, grown in Manitoba, left Winnipeg for Montreal by the new railway in December, 1885. With the opening years of the present century a vigorous policy of advertising the possibilities of western settlement resulted in a large and constantly increasing tide of immigrants, many of whom became settlers on the free fertile lands of the virgin prairie. By 1905 the increasing settlement of the North-West Territories led to the creation therein of the two new provinces of Saskatchewan and Alberta. Since this date the progress of grain production in the west has been continuous, as will be seen from the following table, which shows the area and production of the five leading grains in the three prairie provinces at intervals since 1900. For the first four periods the figures are those of the quinquennial census. For 1923 they are from the annual estimates of the Dominion Bureau of Statistics.

MANITOBA.

Crop	1900	1905	1915	1920	1923
	Acres	Acres	Acres	Acres	Acres
Wheat . .	1,965,200	2,417,253	2,800,424	2,705,622	2,915,915
Oats . . .	573,858	779,279	1,317,365	1,873,954	1,834,504
Barley . .	139,672	249,218	567,080	839,078	1,156,212
Rye . . .	937	2,543	11,507	148,602	337,528
Flaxseed .	14,404	9,205	14,505	146,455	139,519

SASKATCHEWAN.

Wheat . .	487,212	1,376,281	8,929,260	10,061,069	12,791,000
Oats . . .	141,807	606,346	3,336,245	5,106,822	4,238,031
Barley . .	11,842	40,732	299,993	519,014	640,402
Rye . . .	1,296	1,075	7,207	172,449	568,924
Flaxseed .	227	35,664	395,254	1,140,921	465,653

ALBERTA.

Wheat . .	43,062	147,835	2,138,031	4,074,483	5,958,361
Oats . . .	117,745	311,545	1,827,071	3,089,700	2,299,546
Barley . .	11,055	80,900	304,009	480,699	383,858
Rye . . .	1,043	4,090	15,963	160,960	396,758
Flaxseed .	100	943	48,000	103,700	15,000

PRAIRIE PROVINCES.

Wheat . .	2,495,474	3,941,369	13,867,715	16,841,174	21,665,276
Oats . . .	833,410	1,697,170	6,480,681	10,070,476	8,372,081
Barley . .	162,569	370,850	1,171,082	1,838,791	2,180,472
Rye . . .	3,276	7,708	34,677	482,011	1,303,210
Flaxseed .	14,731	45,812	457,759	1,391,076	620,172

CANADA.

	Acres, 1900		Acres, 1915	Acres, 1920	Acres, 1923
Wheat	4,224,542	—	15,109,415	18,232,374	22,671,864
Oats	5,367,655	—	11,555,681	15,849,928	13,727,067
Barley	871,800	—	1,718,432	2,551,919	2,784,571
Rye	176,679	—	121,677	649,654	1,448,142
Flaxseed	23,086	—	463,359	1,428,164	629,938

MANITOBA.

Crop	1900	1905	1915	1920	1923
	Qrs.	Qrs.	Qrs.	Qrs.	Qrs.
Wheat	2,294,127	5,953,323	8,667,000	4,692,700	4,101,000
Oats	1,324,082	3,932,336	6,344,000	7,207,000	7,338,000
Barley	333,350	943,019	2,082,000	2,190,000	3,215,700
Rye	886	7,346	26,000	289,800	577,000
Flaxseed	10,237	13,755	15,000	145,000	174,400

SASKATCHEWAN.

Wheat	538,351	3,974,900	28,039,000	14,141,900	31,578,000
Oats	284,327	3,202,981	18,133,000	17,694,000	27,259,000
Barley	23,452	149,552	1,190,000	1,312,700	2,409,800
Rye	1,579	2,481	25,000	316,800	1,073,000
Flaxseed	302	60,822	657,000	713,000	686,700

ALBERTA.

Wheat	99,645	379,480	8,317,000	10,432,600	20,854,000
Oats	473,381	1,466,039	10,485,000	14,386,000	14,372,000
Barley	35,867	278,898	1,228,000	1,592,300	1,847,000
Rye	2,187	10,623	47,000	427,500	955,000
Flaxseed	87	1,453	84,000	91,000	19,500

PRAIRIE PROVINCES.

Wheat	2,932,123	10,307,703	45,023,000	29,267,200	56,533,000
Oats	2,081,790	8,601,356	34,962,000	39,287,000	48,969,000
Barley	392,669	1,371,469	4,500,000	5,095,000	7,472,500
Rye	4,652	20,450	98,000	1,034,100	2,605,000
Flaxseed	10,626	76,030	756,000	949,000	880,600

CANADA.

Wheat	6,946,536	—	49,192,800	32,898,700	59,275,000
Oats	18,937,176	—	58,119,300	66,338,700	70,500,000
Barley	2,778,046	—	6,752,100	7,913,800	9,624,700
Rye	289,599	—	310,800	1,413,300	2,904,000
Flaxseed	21,528	—	764,000	999,700	892,400

Contemporaneously with the large influx of new settlers during the early part of the century was a constant investment of British capital, which was employed to a large extent for new railways and also for urban development; so that many immigrants, instead of going on to the land, found employment in railway and urban construction. The "boom" created by these conditions could not last indefinitely, and already in 1913 a decided halt was being called to a rate of progress that had become somewhat delirious. But under it the year 1914 saw the completion of the two new transcontinental lines in Canada known as the Canadian Northern and the Grand Trunk Pacific; so that just before the outbreak of the war Canada was in possession of three railway systems stretching from coast to coast. The war put almost a complete stop to further railway construction, and immigration, which reached high-water mark in 1913 with 402,432 new entrants, receded to only 48,537 in 1916. But whilst doing this the war greatly stimulated agricultural production, and as will be seen from the table the area under wheat in the prairie provinces rose from 13·87 million acres in 1915 to 16·84 million acres in 1920. In 1921 the wheat acreage had become 19·38 million acres, and in 1923 21·66 million acres.

It is important also to realise the progress that has been made in matters of farming practice and especially in the production of improved varieties of grain.

There are considerable differences between the conditions of farming in Canada and those of the British Isles. In Canada, especially on the western prairies, the growing season is comparatively short, and all field operations have to be crowded within a limited time, whilst the labour available for much of the work to be done can only be provided by the farmer himself and the members of his own family. If, however, the season is short, growth is correspondingly rapid, and it is astonishing to persons used to conditions in the old land to see how quickly vegetation proceeds when once the start is made. In view of the shortness of the season, early sowing is of great importance, and to get upon the land as soon as possible after disappearance of the snow is a cardinal feature of good Canadian farm practice. Early frost is one of the dangers to be feared and early seeding minimises this danger. If frost should catch the grain before ripening, it is rendered not only unmerchantable, but also unfit for sowing through destruction of vitality. When ripe, frost does the grain little or no damage, and it happens sometimes that threshing cannot be completed during the fall. In these cases the grain may remain out in the stook all the winter, protected by snow, and be threshed in the spring, the grain being little the worse for the exposure, though not grading so well as if threshed in the fall.

The wheat of the prairie provinces is famous for its hard, dry, glutinous quality, which makes it excellent for bread-making. As is well known, English millers use the flour of the finer qualities of Canadian for admixture with English flour, and the Canadian wheat usually realises a higher price than that of the softer English grain. Up to a few years ago the variety of wheat universally grown in the west was the Red Fife. This has now been almost entirely superseded by the Marquis, a product in 1903 of the Cereal Division of the Central Experimental Farm at Ottawa. This variety, the result of a cross between the Red Fife and a wheat imported from India known as Hard Red Calcutta, possesses qualities which make it specially adapted to growth on the prairies. Not only does it ripen about six days earlier than the Red Fife—a very important characteristic when a few days means safety from frost—but it is also remarkable for length of straw, comparative freedom from rust, heavy weight per bushel, fine appearance of the grain, and the excellent colour and baking strength of the flour. It is not too much to say that the use of this variety has increased by millions of dollars annually the revenue derived from wheat-growing by the farmers of western Canada.

GRAIN TRADE LEGISLATION.

Having regard to the present highly organised condition of the Canadian grain trade, it is desirable to trace briefly the successive legislative enactments that have led thereto. As early as 1874, seven years after Confederation, the Dominion Parliament passed the General Inspection Act which regulated the trade in a large variety of staple commodities. Before Confederation, the grain trade had been subject to a measure of control under enactments of the local legislatures; but the General Inspection Act of 1874 was the first measure of the kind applicable to the whole of the new Dominion. Under this Act the different brands of flour and meal were legally defined, and special provisions were applied to the grading of grain. When the grain-growing industry had become established in Manitoba, an Act of 1885 amending the General Inspection Act of 1874 considerably extended the grades of grain, and for the first time introduced grades descriptive of the hard wheats of Manitoba and of what were then known as the North-West Territories. After this came the Manitoba Grain Act of 1900, under which the previous legislation, with amendments, relating to the warehousing and transportation of grain, became merged. The Inspection Act, however, still covered the inspection, grading and weighing of grain; but in 1904 all matters affecting grain were withdrawn from that Act and were transferred to the Grain Inspection Act of that year. On the general revision of the

Statutes in 1906 the provisions of the Grain Inspection Act of 1904 became Part II of the Inspection and Sale Act. In 1912 was passed the Canada Grain Act, which, with a few amending Acts since passed, is the measure that now controls all the operations of the Canadian grain trade. The Act codified all the previously existing enactments of the Dominion Parliament that were in force as controlling the grain trade, and also included numerous additional provisions of important character. Amongst these was the provision for appointment by Order in Council of a Board of three Commissioners, who are known officially as "The Board of Grain Commissioners for Canada." Under the Act this body is charged with the management and control of the grain trade for the whole of Canada in accordance with the provisions laid down. The office of the Board is at Fort William, where, and at the twin city of Port Arthur, are situated the large terminal elevators from which grain is discharged into the lake steamboats plying eastward.

INSPECTION AND GRADING OF GRAIN.

In no country is the work of the inspection and grading of grain more thoroughly undertaken than it now is in Canada. Under the Canada Grain Act all grain shipped in carload lots or cargoes from the elevators is subject to Government inspection and grading. All grain is sold both in the home and foreign markets entirely by grade and not by sample. The Act expressly stipulates that its provisions shall not affect the right to sell by sample; but in practice grain is sold by grade, and the elevator and storage facilities apply only to graded grain.

As each car of grain arrives at an inspection point the grain is sampled and graded by qualified samplers and inspectors appointed under the Act. There are several inspection points, depending upon destination. Thus Calgary is the inspection point for grain proceeding west, and Duluth, the United States port on Lake Superior, for grain passing through the United States in bond. But the chief inspection point is Winnipeg, where all eastward bound grain is inspected on its way to the terminal elevators at Fort William and Port Arthur, whilst these two cities are themselves inspection points for grain as it leaves the terminal elevators. The work of grain inspection is of supreme importance, and the nature of the duties of inspectors is clearly shown by the following quotation from a pamphlet on Grain Inspection in Canada by Dr. Magill:

> "The inspectors of the grain of western Canada have no easy or unimportant task. They stand between two opposing interests, farmers and millers, the former complaining of undue severity, and the latter of culpable leniency. Upon their flank is a third army of critics, the dealers, who consider the grading severe or lenient according as they themselves

are sellers or buyers. They have to inspect an enormous volume of grain per car unit, and in certain seasons they must work rapidly and continuously during daylight. They must never be bewildered, either by the variety or continuity in which nature revels, or by the multiplicity of grades of which the terms are neither very distinct nor unambiguous. They have few mechanical aids. Their senses must always be keen, and their judgment always sound, for one error will be remembered against years of efficient service. Their work is of supreme importance, for their verdict fixes which rate per bushel, out of several quoted on the market, the seller will receive, and the grain is stored, transported, and sold both at home and abroad on their certificate."[1]

The actual grading which results from the inspection is done in offices upon an upper floor of the Winnipeg Grain Exchange building which are rented by the Dominion Government. It is worth while, I think, to describe in some detail the work of grain inspection as carried out at Winnipeg, and I take the particulars from Dr. Magill's pamphlet previously referred to.

Samples are taken from the car, and the details necessary for the issue of the certificates are collected in the yards; both samples and details are taken to the inspection office in the Grain Exchange. The sampling is done by samplers usually working in gangs of fourteen men. Of these, four are track foremen, eight are the actual samplers, one is a car opener and one a car sealer. The track foremen are responsible for the efficiency of the work, each foreman usually superintending two samplers.

On the arrival of the train the conductor leaves the car bills in the railway company's yard office. The train clerk of the Inspection Department makes a list of these bills showing the car numbers, the name of the shipper, the shipping station, the destination and the name of the person or company to whom the car is billed. These details are necessary for the issue of the certificates. He takes this list to the yard office of the Inspection Department and hands it to the clerk there. This clerk, also a Government employee, prepares the sheets necessary for the Inspection Office. The sheets are two in number, a larger and a smaller. The larger sheet shows all the details above mentioned, and the smaller—a carbon copy—shows only the car number and a column for the grade. Both sheets are sent to the Inspection Office, with the corresponding samples, but the larger sheet with all the details is given to the clerical staff who issue the certificates, while only the smaller sheet is given to the inspectors who grade the grain. In this way all knowledge of the ownership of the grain is kept from the man who grades it. He does not know whose car he is grading; his information is limited to the number of the car. When the train is ready the work begins immediately. A train may consist of about forty-five cars, and the gang should complete the work in less than one hour. The car opener leads off, opening the car doors and placing an empty sample bag in each car. The bags are well cleaned beforehand; so that no foreign matter shall be mixed with the sample. The sampler then mounts the ladder and drives his "probe" into the grain several times and at several points. The probe, which in principle is similar to a cheese sampler, is otherwise known as a "sampler" or "stabber"; it is a double brass tube pointed at the base and closed at both ends. It is about 5½ ft. in length and 2 in. in diameter. Both tubes are perforated on one side by eleven equidistant coincident apertures, each of which is about 3½ in. long and 1 in. wide. Between each two adjacent apertures are unperforated portions of the tubes about 2 in. long. The inner tube is divided into eleven chambers by plugs at intervals, so that each aperture leads into a single chamber. The inner tube can be revolved within the outer one by means of a handle at the top of the instrument. By turning the handle and thus revolving the inner tube the apertures leading into the inner tube can be closed or opened. When the probe is pushed down into the grain a revolution of the handle fills the apertures with grain, and on the probe being removed another turn of the handle opens the apertures and enables the grain to be emptied in eleven small heaps on the cloth placed ready to receive it near the car door (*see* Fig. 4). The space between the grain and the roof of the car is not deep; a load line marked on the inside shows how deeply the car should be loaded. It sometimes happens that a car is loaded so full that a fair sample cannot be taken. In such cases the fact of the overloading is put on the ticket by the sign "I.H.," which means "hold for inspection." Such cars are provisionally inspected at Winnipeg. The car numbers are sent to Fort William with instructions to inspect while being unloaded.[1]

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[1] *Grain Inspection in Canada.* An illustrated pamphlet prepared at the request of Sir George Foster, K.C.M.G., M.P., Minister of Trade and Commerce, by R. Magill, M.A., Ph.D., Chief Commissioner, Board of Grain Commissioners for Canada. Ottawa, 1914.

Less frequently, writes Dr. Magill, cars are "plugged," loaded, that is to say, with intent to get some low-grade grain past the inspector by concealing it somewhere in the car. The sampler may discover the fraud, and if he does not the inspector at the terminal point usually does. Plugging is a losing game for the shipper, for the whole car is graded according to the quality of the worst grain found in it. If the car is divided into partitions, a sample is taken out of each partition; otherwise the unit of quantity for sampling is the car. The track foreman mounts the ladder, leans over the car door, watches the probing, mixes up the sample in order to secure an average, puts it into the sample bag, writes the sample ticket, inserts the ticket in the sample bag, and on descending hangs the bag on the car door (*see* Fig. 5). His name is stamped on the back of the ticket, and on the face he writes the car number, the date, the load line, the initials of the sampler, and any other notations necessary, *e.g.*, leakages, &c. Should any questions arise later about the sample, the ticket shows who did the work, the notations made at the time, and the name of the foreman responsible. When the sampling is finished the bags are collected, counted, and taken to the Government office in the yard. The numbers on the sample tickets are checked with those on the track sheet by the car office clerk, and both the samples and the sheets are sent immediately to the Inspection Office. The car sealer follows the samplers, closing and sealing the doors. Every car is sealed at the shipping point by the railway agent. The object of sealing is, of course, to protect the grain on the way. At Winnipeg only one door of the car is opened, and therefore only one seal is broken. The car sealer reseals that door, and the seals are not touched again until the car is placed at the elevator to be unlocked. When the samples reach the office they are set out on the tables according to number, those ending in 0–2–4, &c., being put together. Each inspector than takes his sheet, the small one prepared by the car office clerk, and picks out the samples the numbers of which correspond with the numbers on his sheet, and he places them in large boxes in rotation as they appear on the sheets.

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[1] These particulars are taken partly from a chapter on the Grading of Grain in *Essays on Wheat*, by Dr. Reginald Buller, Professor of Botany, University of Manitoba. Macmillan, New York, 1919. The reader may be referred to this work for much detailed information on wheat-growing in western Canada.

The inspection proper then begins. As good light is essential to grading, the inspection begins at 9 a.m. and ends at 3 p.m. The north light being the best, each inspector does his grading at a north window. The actual grading can only be done by men legally qualified and appointed either as deputy-inspector or inspector. Inspection turns mainly on three points: quality of the grain, condition, and admixtures. Quality depends on soundness, colour, weight and the percentage of hard wheat. Condition depends upon moisture-content (which in doubtful cases is tested mechanically), heat, &c. Admixtures are tested by a process of sieving and weighing called "setting the dockage." In this process either the cleaned grain or the resulting screenings can be weighed. Both methods are permissible and both give accuracy. At Winnipeg the screenings are weighed, while at Fort William the cleaned grain is weighed. When the grading is finished the samples are put into tins with the sample tickets and placed systematically on shelves. They are kept so long as it is considered possible that they may be required, and then they are sold. The inspector's sheets are handed over to the clerical staff, the records are made, and the certificates of grade are issued. (*See* Fig. 6.)

There are of course many causes which injure wheat for milling purposes, and it is these which necessitate its inspection and grading. First, wheat may contain mixtures of other cereals, or of various seeds; of barley, oats and flax; of cactus, chess, cockle, darnel, garlic, wild mustard, wild oats, pigweed, ragweed, stinkweed, &c. None of these mixtures are desired by the miller of flour, whatever value they may have for other purposes. Secondly, while free from admixtures, it may still be unfit for milling, either because it is affected by diseases such as smut; or because it contains too large a percentage of moisture, which renders it tough, damp or wet; or because it is dirty or musty; or because it is heating or binburnt. A second important part of inspection relates accordingly to what is called the condition of the grain. Thirdly, the wheat, whilst free from admixtures and sound in condition, may still be of variable quality for milling purposes. There are many varieties of wheat differing in their yield of flour both as to quality and quantity. Wheat grown as hard spring wheat may contain too large a percentage of other varieties to be graded high. And when this is not the case, different lots of hard spring wheat may vary in weight per bushel, in colour, in plumpness, and those qualities which are best for the production of high-class flour. The supreme test of wheat is its milling and baking value, and, judged by this test, wheat as delivered by the farmer shows many and wide variations. The resulting classes are called "grades," and similarly there are grades of oats, barley and flax.

Under the Canada Grain Act, Canadian grain is divided into five general classes, *viz.*, "No grade," "Condemned," "Rejected," "Commercial grade," and "Statutory grade." "No grade" means all good grain that has an excessive moisture, being tough, damp or wet, or otherwise unfit for warehousing. "Condemned grain" means all grain that is in a heating condition or is badly binburnt, whatever grade it might otherwise be. "Rejected grain" means all grain that is unsound, musty, dirty, smutty or sprouted, or that contains a large admixture of other kinds of grain, seeds or wild oats, or that from any other cause is unfit to be classed under any of the recognised grades. "Commercial grade" means grain which, because of climatic or other conditions, cannot be included in the grades provided for in the Act. More particularly it means that the grain of one year may vary from that of the preceding year, and that a proportion of it therefore cannot be dealt with under the grades laid down in the Act, and must be provided for by grades defined by the Standards Board, appointed under sections 48 to 51 of the Act. "Statutory grade" means grain of the highest grades which are defined by Parliament, embodied in the Grain Act. There are four of these grades for Manitoba spring wheat, three each for Alberta Red and White winter wheat,and two for Alberta Mixed winter wheat. In the same way there are statutory definitions of the highest grades of oats, barley, rye and flaxseed. Thus the statutory definitions can only be changed by Parliament: they do not vary with the crop, but are constant. The commercial grades, on the other hand, are fixed by the Standards Board, and may vary from year to year. The Act defines four grades of western spring wheat, *viz.*, No. 1 Hard, No. 1 Northern, No. 2 Northern, and No. 3 Northern, whilst the Standards Board has defined three additional grades, *viz.*, No. 4 Northern, No. 5 Northern, and No. 6 Northern. But wheat of any of the six grades of northern may fall under the general categories of "no grade," "condemned," or "rejected." Grain, as inspected and graded at Winnipeg, is received into the terminal elevators, but is again finally inspected and graded in bulk as it is loaded into the lake steamers. For this final grading the grain is sampled at three places: working house, on the floor of the working house, and on the steamer as it pours from the shipping bin to the hold.

For the statutory grades of wheat the Act prescribes that No. 1 Hard and No. 1 Northern shall be "sound and well cleaned, weighing not less than 60 lb. to the bushel and composed of at least 75 per cent. for No. 1 Hard and 60 per cent. No. 1 Northern of hard Red Fife wheat." No. 2 Northern must be "sound and reasonably clean, of good milling qualities and fit for warehousing, weighing not less than 58 lb. to the bushel, and composed of at least 45 per cent. of hard Red Fife wheat." No. 3 Northern comprises grain not good enough for No. 2 that is graded No. 3 at the discretion of the inspector. A variety of other "statutory grades" are established under the Act for spring wheat, goose wheat, winter wheat, Indian corn, oats, rye, barley, peas, buckwheat and flax, with distinctions for grain grown in the West. The effect of these arrangements is that there may be as many as 31 grades of western spring wheat alone, 30 grades of western winter wheat, 30 grades of oats, 15 of barley, and 15 of flax. Of the other three classes, *i.e.*, grain not graded, "rejected grain" means all grain that is unsound, musty, dirty, smutty or sprouted, or that contains a large admixture of other kinds of grain, seeds or wild oats, or that from any other cause is unfit to be classed under any of the recognised grades. "Condemned grain" means all grain that is in a heating condition or is badly binburnt, whatever grade it might otherwise be, and "no grade" means all good grain that has an excessive moisture, being tough, damp or wet, or otherwise unfit for warehousing. All grain in Canada is sold, unless otherwise contracted for, by certain legal weights per bushel. These were originally fixed by an Act of the Dominion Parliament passed in 1879. At the present time the legal weights per bushel for the principal grains are as follows : Wheat 60 lb., rye 56 lb., barley 48 lb., oats 34 lb., flaxseed 56 lb.

It should be noted that although the Canada Grain Act stipulates " hard Red Fife wheat," its present application is also to " hard Marquis wheat," this variety having, as already mentioned, almost entirely superseded the Red Fife since the Act was passed in 1912.

CANADIAN SYSTEM OF GRAIN ELEVATORS.

Harvesting on the prairie differs essentially from old-country methods in that the threshing is done in the field direct from the stook instead of from stacks at the homestead to which the sheaves have been carried (*see* Fig. 7). As a general rule grain is not put up in stacks at all on the prairies, except in cases where this is rendered necessary owing to the failure of threshing machines to get round in time. The traveller from the railway train passing over the prairies during harvest sees them dotted with threshing machines busily at work, the threshed straw being driven through a spout by fanning machinery and making stacks to be in most cases subsequently burned. The threshed grain is delivered loose in wagons to the country elevators, warehouse platforms or loading platforms alongside the railway stations. As will be noticed from the illustration, the loose grain is delivered into the wagon through a spout from a small elevator forming part of the threshing outfit, the mechanism of this elevator being similar in principle to that hereafter described. It is the object of each farmer, as it is also that of all concerned in the marketing of grain, to get it forwarded as rapidly as possible before the setting in of the winter.

Here it is desirable therefore to describe the great system of the Canadian Grain Elevators, which are licensed and controlled by the Board of Grain Commissioners under the provisions of the Canada Grain Act. Having regard to the flowing capacity of loose grain, which gives to it something of the nature of a liquid such as water, it will be understood that the term " elevator " refers originally to the mechanical device by which grain must first be hoisted in order to store it in bulk. Like water, therefore, stored in tanks, grain must go in at the top of the bin and flow out at the bottom. The mechanical device most generally employed is on the endless chain and bucket principle, which is applied for lifting the grain perpendicularly. For its conveyance horizontally and for the purpose of shooting it into different bins, leather belts about 36 in. wide are employed. On these belts the grain packs tightly to a depth of several inches and is conveyed at considerable speed from one part of the building to another. The term elevator, originally employed to designate the hoisting mechanism, has now come to signify the whole of the building used for the handling and storage of the grain. It is in this sense that the term is generally used in this article.

When grain was first shipped from western Canada it was hauled by the farmer, either loose or in sacks, to flat warehouses or simple wooden storehouses built by grain dealers along the railway lines. The elevators which were introduced into Canada about the year 1880, enabled the grain to be handled much more easily than was possible with the primitive warehouse. This has now practically disappeared, whilst the elevators have, especially since the beginning of the present century, grown rapidly in number and capacity. Another method of shipping grain is by what is known as the grain-loading platform. This is a wooden structure on to which a farmer can drive his team and from which he can shovel the grain into the car. It is provided as an alternative convenience for the farmer who wishes to ship grain in carload lots, preserve its identity and eliminate the handling charges incurred by use of a country elevator. In addition, the farmer is in a position to take advantage of any of the methods of marketing the grain without prejudice. He has, however, to secure the car himself, make his own arrangements for selling the grain and load the grain into the car with his own labour. Most farmers do not therefore use the loading platform and others cannot easily use it if they would. Farmers living at a distance of about ten miles from the siding, or who have less than car lots to ship, cannot easily avail themselves of it. Naturally the elevator owners do not look upon the loading platforms with much favour, and the railway companies regard them as tending to delay the cars unduly. But there are now in existence 2,080 of these platforms, with a total car capacity of 4,928. The quantity of grain shipped by loading platforms during the crop year 1922–3 was 33,924,088 bushels (4,240,511 qrs.), of which 23,210,579 bushels (2,901,322 qrs.) were wheat. This is only a small proportion of the total shipped, being less than 8 per cent. in the case of wheat.

Canadian grain elevators are of seven different categories. First, there are the "country elevators," which, as defined by the Canada Grain Act, include all elevators and warehouses or flat warehouses which receive grain for storage before inspection, and which are situated at a railway station or on railway sidings or lands. When the farmer takes his grain to a country elevator he can either sell the grain outright to the elevator company, in the elevator to keep his grain distinct from all other grain, when it is known as "special binned grain." By a third alternative he can store his grain with other grain of the same grade. If he stores his grain either in a special or general bin he arranges with the railway company for a car and the elevator company loads the grain into the car to his order. When the grain is loaded he can either sell it on the spot as "track grain," or send it forward consigned on commission.

Ownership of the country elevators is in the hands of the farmers' co-operative companies, private elevator companies and milling companies. Among the farmers' organisations in western Canada, organised for trading in grain and other commodities, are the United Grain Growers, Limited, and the Saskatchewan Co-operative Elevator Company, Limited. These two companies control not only a large number of country elevators, but also storage at the head of Lake Superior, and between them handle a large proportion of the western crop. According to information supplied by the United Grain Growers, Limited, that organisation in 1923 comprised approximately 35,000 farmer shareholders. It controlled 364 country elevators with a capacity of 10,662,000 bushels (1,332,750 qrs.), as well as storage capacity for 3,100,000 bushels (387,500 qrs.) at terminal points, and in the crop year 1922–3 handled approximately 30 million bushels, or 3,750,000 qrs. of grain.

The Saskatchewan Co-operative Elevator Company, comprising 23,000 farmer shareholders, operates 354 country elevators, having a total capacity of 10½ million bushels (1,312,500 qrs.), and a terminal plant with a capacity of 7,750,000 bushels (968,750 qrs.). This one company claims to have handled 43 million bushels (5,375,000 qrs.) of all grains in 1922–3.[1]

In 1923 the total number of country elevators in Canada was 4,071, with an aggregate storage capacity of 133,958,620 bushels, or 16,744,827 qrs. The illustration (Fig. 8) shows a series of typical country elevators as erected at Gleichen, Alberta.

Next come the large terminal elevators to which the country elevators are tributary, and which are situated at Fort William and Port Arthur, the twin cities at the head of Lake Superior. From these terminal elevators the grain is shipped by the lake steamboats to Montreal by lake, river and canal, or to the lake ports of Canada and the United States. These elevators are called "terminal" not because they happen to be situated at the railway terminal, but because the inspection of western grain ends at them. They are of two kinds, *viz.*, "public" and "private." Public terminal elevators are defined as including every elevator or warehouse which ships or receives grain and

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[1] *Canadian Wheat and Wheat Flour*, Publications Branch, Department of Agriculture, Ottawa, 1924, p. 19.

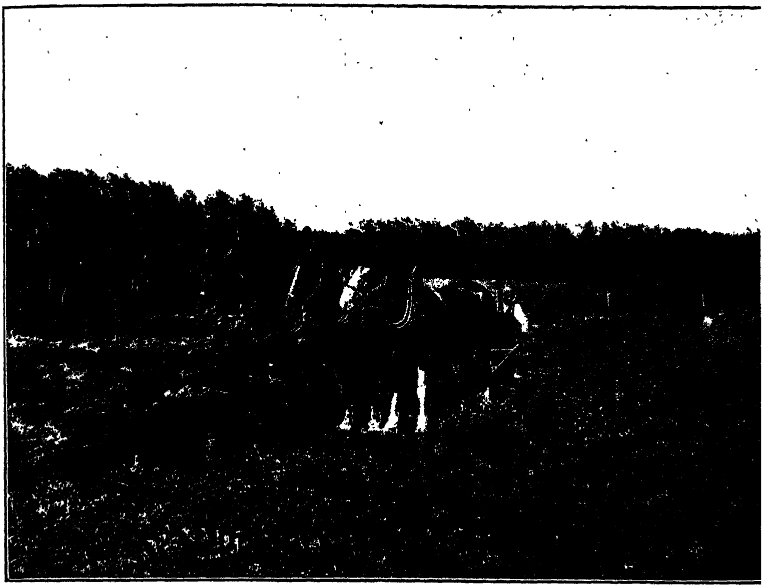

FIG. 1.—Breaking Virgin Prairie in Western Canada.

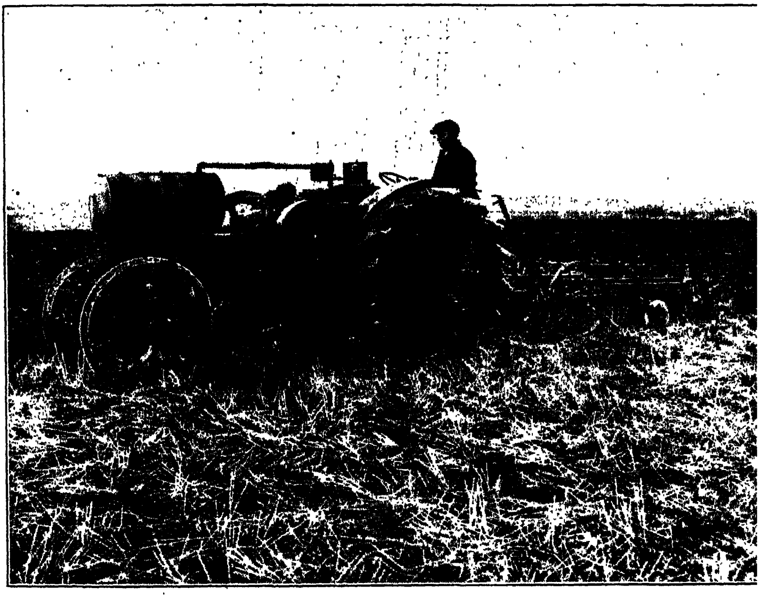

FIG. 2.—Ploughing by Tractor in Western Canada.

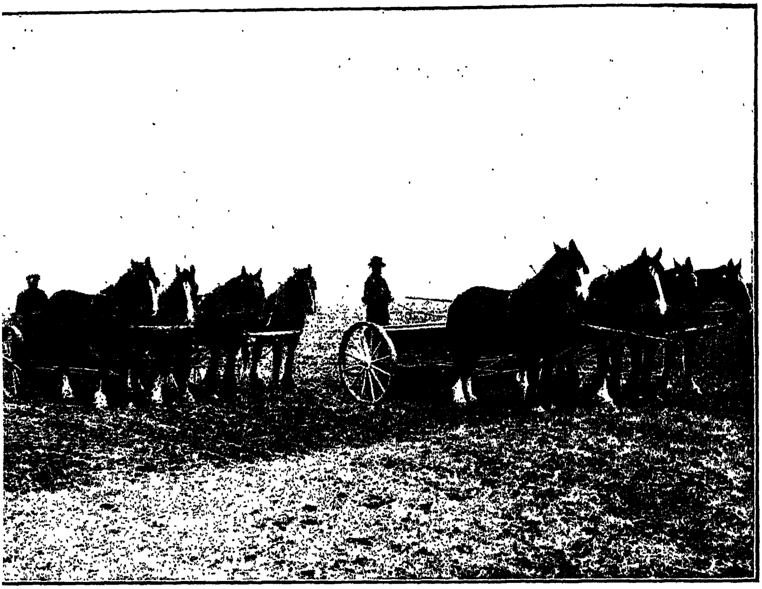

Fig. 3.—Two Seeders at work on Western Canada Farm.

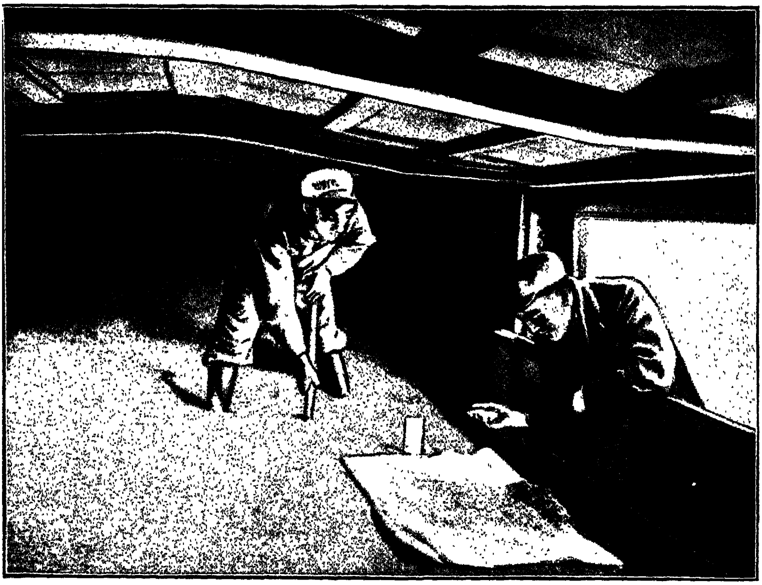

Fig. 4.—Probing the Grain. Track Foreman examining the Samples.

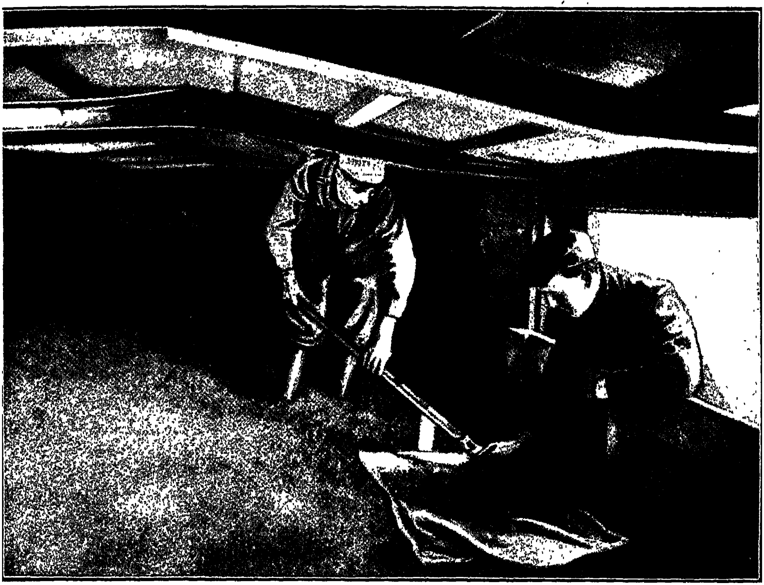

FIG. 5.—Emptying the Probe. Track Foreman examining the Samples.

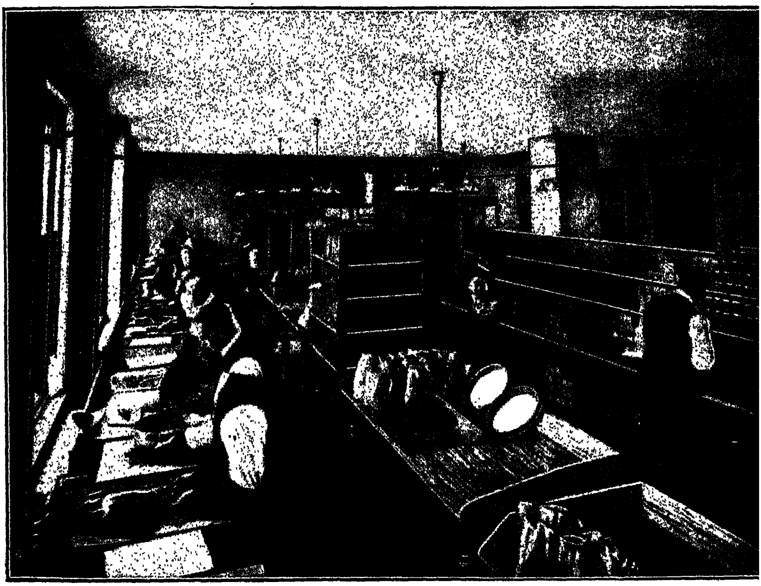

FIG. 6.—Grading of Grain. Inspectors at work at Winnipeg.

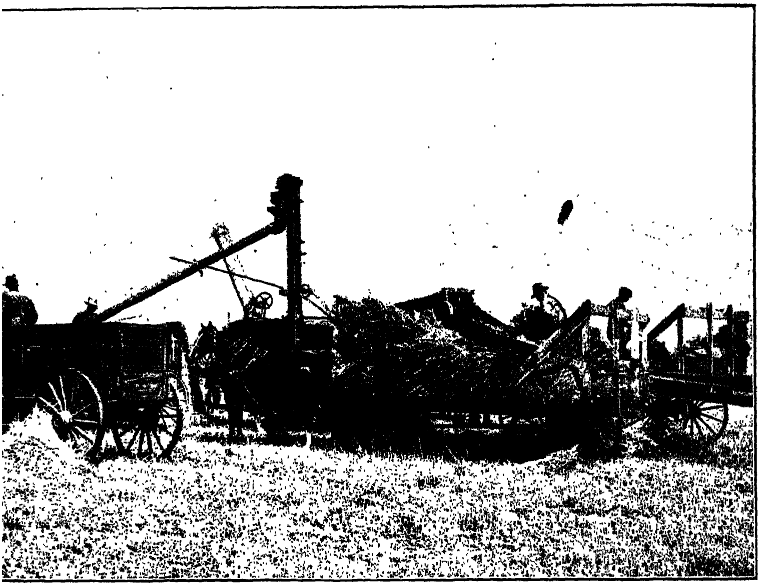

Fig. 7.—Threshing Scene in Western Canada.

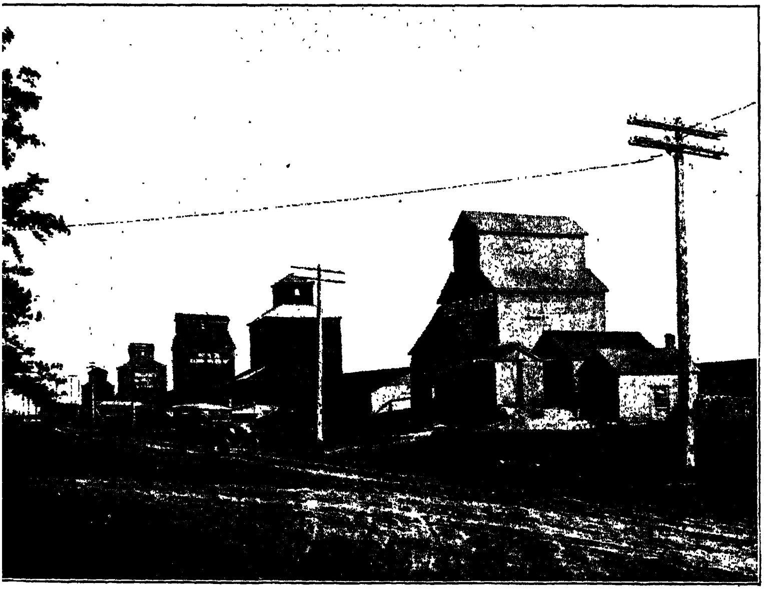

Fig. 8.—Country Elevators at Gleichen, Alberta.

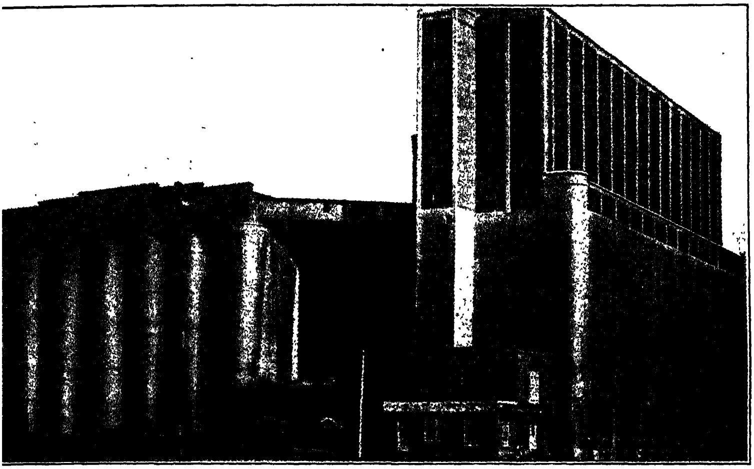

FIG. 9.—Dominion Government Elevator at Port Arthur, operated by the Board of Grain Commissioners for Canada.

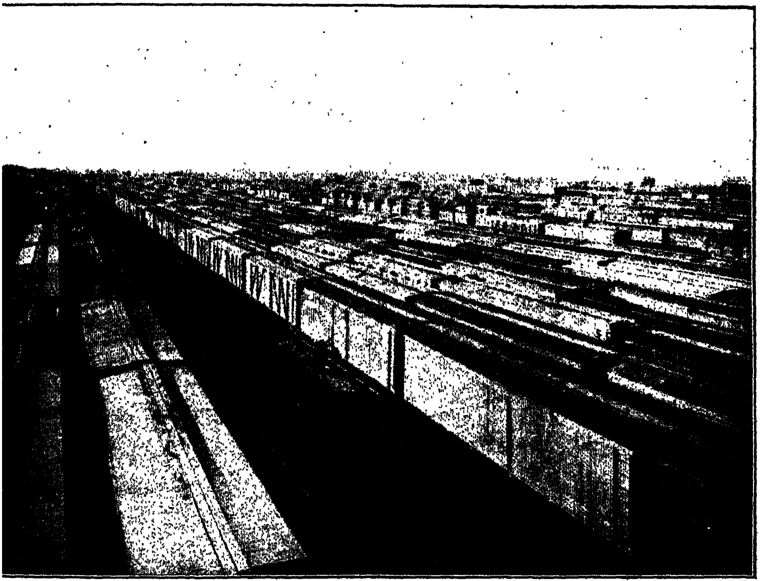

FIG. 10.—View of Canadian Pacific Railway Yards at Winnipeg.

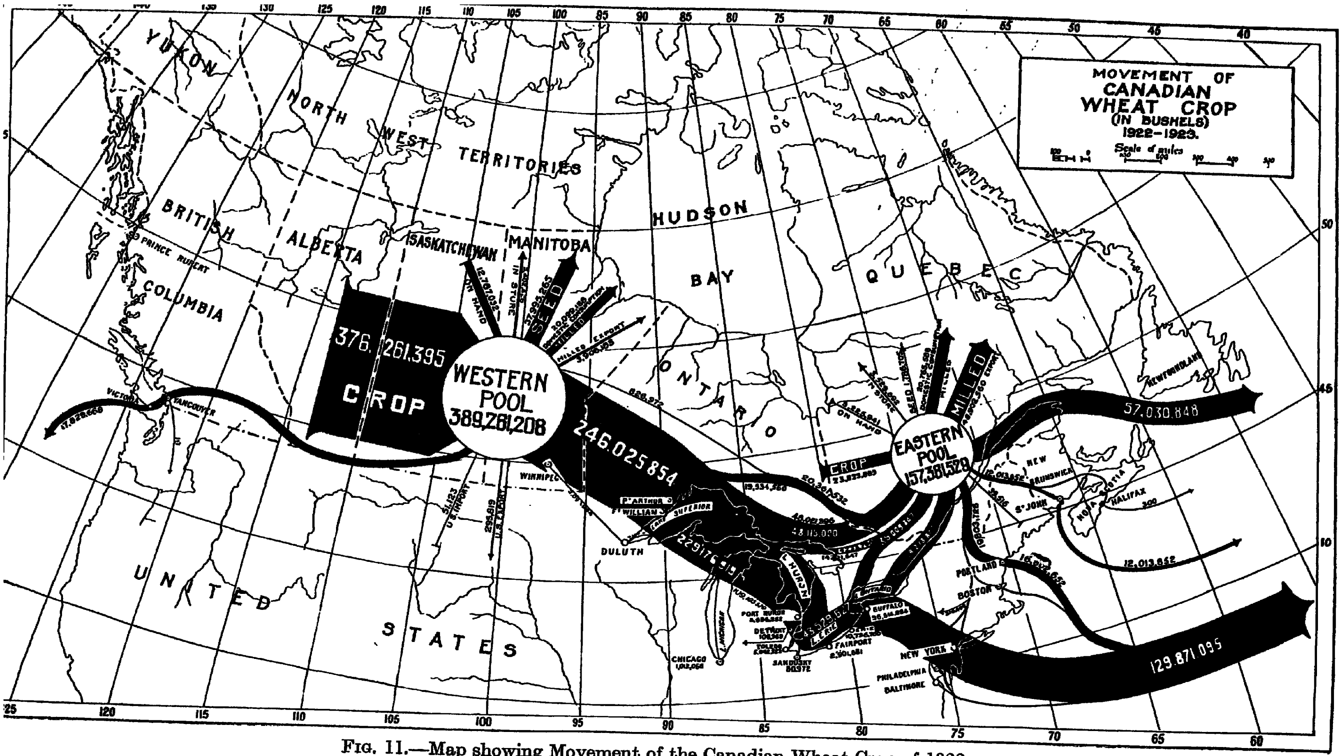

Fig. 11.—Map showing Movement of the Canadian Wheat Crop of 1922.

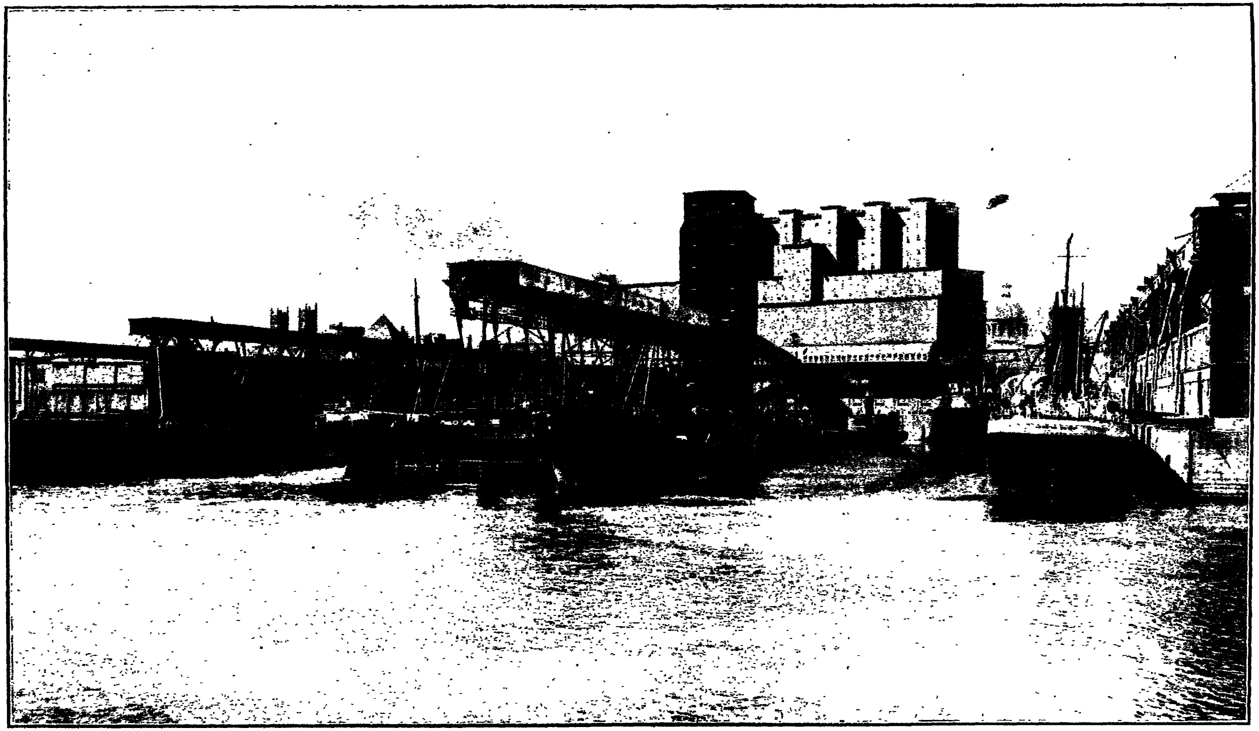

FIG. 12.—Ocean Liners loading Grain in Montreal Harbour.

is located at a point declared by the Governor in Council to be a terminal. The private terminal elevators are defined as including every elevator licensed under the regulations governing sample markets. All grain received into the private terminal elevators must be the property of the owners of the elevator, although these may contract for the handling or mixing of grain in such elevator.

In view of their size and importance, the names and capacity of the terminal elevators as at present existing may be given as shown in Table on following page.

Thus, altogether at Fort William and Port Arthur, there are now 34 terminal elevators with a total capacity of 63,310,000 bushels, or 7,913,750 qrs. At Vancouver there is also a Government elevator which is now operated by the Harbour Commissioners. It has a total capacity of about 2,000,000 bushels, or 250,000 qrs. Two more elevators are in course of construction at this port.

Under the Canada Grain Act, the Dominion Government received power to erect and operate terminal elevators through the Board of Grain Commissioners. One such elevator was accordingly erected at Port Arthur in 1913; and, in addition, the Dominion Government own and operate three interior terminal elevators, these being situated respectively at Moose Jaw, Saskatoon, and Calgary. The Canadian Government elevator at Port Arthur has a total capacity of 3¼ million bushels, or 406,250 qrs., whilst the combined total capacity of the three Government interior terminal elevators is 9½ million bushels, or 1,187,500 qrs.

The Board of Grain Commissioners has furnished the following information respecting the Government elevator system:

> The entry of the Government into the commercial handling of grain was due primarily to agitation on the part of the agricultural interests in the West regarding the operation of privately owned terminal elevators. A public terminal elevator was built by the Government at Port Arthur, Ontario, with the following objects in view: (1) to demonstrate whether the tariff of charges in effect at privately owned terminal elevators was excessive or not; (2) to provide the farmers of western Canada with an absolutely government-owned and controlled elevator to which they could consign their grain; (3) to assist, in a general way, the more rapid movement of grain.
>
> With these objects still in view, further elevators were erected by the Government at Moose Jaw and Saskatoon in Saskatchewan, at Calgary in Alberta and at Vancouver in British Columbia. The erection and operation of the interior terminal elevators at Moose Jaw, Saskatoon, and Calgary provided storage for 9½ million bushels of grain, and largely takes care of the grain between the close and the opening of navigation.
>
> All the elevators operated by the Board of Grain Commissioners are of the most modern and fireproof construction. Up-to-date machinery is installed for the drying, cleaning, and handling of grain. These elevators are also provided with inspection and weighing facilities to the same

A. PUBLIC TERMINAL ELEVATORS.

Terminal Point	Elevator	Designation	Connecting Railway	Capacity	
				Bush.	Qrs.
Fort William	Canadian Pacific Railway	"A & C"	C.P.R.	2,250,000	281,250
,,	Consolidated Elevator Co., Ltd.	—	,,	1,750,000	218,750
,,	United Grain Growers, Ltd.	"B & E"	,,	2,500,000	312,500
,,	Northland Elevator Co., Ltd.	—	,,	7,500,000	937,500
,,	Ogilvie Flour Mills, Ltd.	—	,,	2,000,000	250,000
,,	Grand Trunk Pacific Elevator Co., Ltd.	—	C.N.R.	5,750,000	718,750
Port Arthur	Saskatchewan Co-operative Terminals, Ltd.	No. 3	C.P.R. & C.N.R.	7,500,000	937,500
,,	,, ,, ,, ,,	No. 1	,,	6,425,000	803,125
,,	Canadian Government Elevator	—	C.P.R.	3,250,000	406,250
,,	Port Arthur Elevator Co., Ltd.	"A"	—	850,000	106,250
			Total Capacity	39,775,000	4,971,875

B. PRIVATE ELEVATORS.

Terminal Point	Elevator	Designation	Connecting Railway	Capacity	
				Bush.	Qrs.
Fort William	Bole Grain Co.	"Electric"	C.P.R.	520, 000	65,000
,,	Mutual Elevator Co.	—	C.P.R. & C.N.R.	1,750,000	218,750
,,	R. B. McClean Grain Co., Ltd.	"X"	C.P.R.	70,000	8,750
,,	N. M. Paterson & Co., Ltd.	"O"	C.P.R. & C.N.R.	1,350,000	168,750
,,	R. B. McClean Grain Co., Ltd.	—	C.P.R.	35,000	4,375
,,	Western Terminal Elevator Co., Ltd.	—	,,	3,050,000	381,250
,,	Empire Elevator Co., Ltd.	—	,,	1,750,000	218,750
,,	Gillespie Terminal Grain Co., Ltd.	"Island"	,,	250,000	31,250
,,	N. M. Paterson & Co., Ltd.	"K"	C.P.R. & C.N.R.	65,000	8,125
,,	Mount MacKay Feed Co., Ltd.	—	C.N.R.	10,000	1,250
,,	J. Davidson & Co., Ltd.	—	,,	10,000	1,250
,,	McCabe Bros.	"Capital"	,,	65,000	8,125
,,	B. J. Ostaander & Co., Ltd.	—	,,	85,000	10,625
,,	Northwestern Elevator Co., Ltd.	—	C.P.R. & C.N.R.	2,500,000	312,500
Port Arthur	Eastern Terminal Elevator Co., Ltd.	"Richardson"	,,	3,500,000	437,500
,,	Stewart Terminals, Ltd.	—	C.N.R.	1,300,000	162,500
,,	National Elevator Co., Ltd.	—	,,	50,000	6,250
,,	United Grain Growers Export Co., Ltd.	—	,,	600,000	75,000
,,	Thunder Bay Terminal Elevator Co., Ltd.	—	,,	1,500,000	187,500
,,	Reliance Elevator Co., Ltd.	—	,,	1,500,000	187,500
,,	Superior Elevator Co., Ltd.	"P & H"	C.P.R. & C.N.R.	300,000	37,500
,,	Saskatchewan Co-operative Elevator Co., Ltd.	"No. 2"	,,	1,150,000	143,750
,,	Gillespie Terminal Elevator Co., Ltd.	—	C.P.R.	625,000	78,125
,,	Bawf Terminal Elevator Co., Ltd.	—	C.N.R.	1,500,000	187,500
			Total Capacity	23,535,000	2,941,875
			Grand Total Capacity	63,310,000	7,913,750

NOTE.—C.P.R. = Canadian Pacific Railway. C.N.R. = Canadian National Railway.

extent as the elevators at the lake terminals, official weight and grade certificates being issued and warehouse receipts issued and registered for all grain received.

The elevator at Vancouver is really a transfer elevator, built with the object of establishing a connecting link between the prairie provinces and Oriental markets, and in order to demonstrate the feasibility of shipping grain between Vancouver and Europe by the Panama route, it being intended that this elevator should operate for these purposes in conjunction with the interior terminal elevators at Moose Jaw, Saskatoon, and Calgary. Official weighing and inspection facilities are also provided in the Vancouver elevator.

The objects served by the interior terminal elevators at Moose Jaw, Saskatoon and Calgary might be briefly enumerated as follows: (1) to provide facilities for meeting emergencies, which experience has shown frequently occur, affecting the grain trade of western Canada. There have been from time to time congestions due to shortage in storage and shortage in railway cars, and there have also been seasons when, owing to the lack of drying and other hospital facilities in the grain field, there has been very serious loss incurred by the producers of grain. The interior terminal elevators were intended in the first instance to provide for such emergencies; (2) to provide a certain amount of surplus storage as near to the point of production as possible; (3) to provide a certain amount of cheap storage for local mills throughout the West, thereby stimulating the milling industries of the prairie provinces; (4) to provide means whereby the producers of grain in the West might have an opportunity of retaining some of the by-products of their grain in the West, thereby supplying one of the conditions necessary for the adequate development of mixed farming; (5) to provide available markets, whether west, south, or east, as the demand might arise; (6) to provide for the cleaning and preparing of seed grain, both for the West and for the East, special machinery being installed for this purpose.

In addition to the handling of commercial grain, a considerable amount of specially selected seed wheat and seed oats has been handled at the interior elevators for the Dominion Department of Agriculture, the screenings from which, as in the case of commercial grain, are retained in the West, thereby rendering available to the live-stock industries the necessary feeding commodities at a minimum of expense.

A third description of elevator is known as "public elevators." These the Grain Act defines as including every elevator or warehouse which receives grain for storage from the western inspection division after such grain has been inspected under the Act. In simpler and less legal phrase the public elevators are those which are situated in eastern Canada for the reception of western-inspected grain on its way to the mills in eastern Canada or to the European markets. They are situated in the eastern ports of the Great Lakes or on the Atlantic seaboard. They differ from the terminal elevators both in function and equipment. Primarily, they are neither storage elevators nor elevators for the treating and cleaning of grain. They are really transfer houses, forming part of the transportation machinery, and are equipped to transfer grain already graded and cleaned from boat to bin and from bin to railway car or ocean steamer. One of these elevators is owned directly by the Canadian Government, and is operated and administered through the Department of Railways and Canals. It is situated at Port Colborne on Lake Erie near the entrance to the Welland Canal, through which the grain is transferred to canal-sized boats in order to carry it down through the small locks on the Welland and St. Lawrence canals to Montreal. Five elevators are owned and operated by the Canadian National Railways. Three are situated at Tiffin, Depot Harbour and Collingwood on the Georgian Bay, one is at St. John, New Brunswick, and the other is at Halifax, the last two places being ports on the Atlantic seaboard. The Canadian Pacific Railway owns and operates one at Port McNicoll on Georgian Bay. Of the others, four are operated by the Montreal Harbour Commissioners, and one is operated by the Quebec Harbour Commissioners. The remainder are operated by warehouse companies that do not trade in grain and others by companies that do.

Excepting those of the Government, all these elevators are required to take out annually licences from the Board of Grain Commissioners, and to file bonds with the Commissioners. Their tariffs and charges are under the Board's control, and they must conform to certain sections of the Grain Act as regards the reception, binning, treatment and shipment of the grain. The principle of these provisions is that the identity of the grain must be maintained; whatever grade the grain carries as it is received, it must carry as it is delivered. The method of applying this principle is not that of inspection and supervision of the work of the elevators as at Fort William and Port Arthur, but that of tracing the identity of the grade should the buyer consider that the grain delivered is not equal to the grade of the certificate. There are altogether 24 public elevators, with a total capacity of 34,200,000 bushels, or 4,275,000 qrs.

In the fourth category are "eastern elevators." These are small elevators for the storage of grain grown in eastern Canada, that is east of the Great Lakes, and they number at present 80. They are situated at towns in Ontario, Quebec and the Atlantic provinces, and store annually from between 50,000 and 100,000 bushels of grain each for local grist mills.

Private elevators, formerly known as "hospital" elevators, constitute a fifth class. These are used for the cleaning or other special treatment of rejected or damaged grain, and are equipped with special machinery for this purpose. There are 58 of these elevators, with a total capacity of 30,511,000 bushels (3,813,875 qrs.). Twenty-five, with a capacity of 23,535,000 bushels (2,941,875 qrs.), are situated at Fort William and Port Arthur, and have been already mentioned under terminal elevators. The remaining 33 are located at interior points, *viz.*, Calgary, Alberta (6); St. Boniface, Manitoba (4); Saskatoon, Saskatchewan (1); Medicine Hat, Alberta (3); Winnipeg, Manitoba (4); Moose Jaw, Saskatchewan (2); Vancouver, B.C. (5); Keewatin, Ontario (2); Kenora, Ontario (1); Portage la Prairie, Manitoba (1); Brandon, Manitoba (1); Edmonton, Alberta (1); New Westminster, B.C. (1); Titian, Alberta (1).

There are also the milling or manufacturing elevators, which include every elevator or warehouse used or operated as part of any plant engaged in the manufacture of grain products. There are nine of these elevators,—three situated at various points in Manitoba, five in Alberta and one in British Columbia,—with a total capacity of 1,691,000 bushels (211,375 qrs.).

Finally, there are five interior public terminal elevators. Two of these are situated in Manitoba at North Transcona, operated by the Canadian Pacific Railway, and Transcona, operated by the Canadian National Railways. The other three are situated at Moose Jaw, Saskatoon and Calgary, and are owned and operated by the Canadian Government through the Board of Grain Commissioners, as already stated.

As showing the great progress made in the development of the grain elevator system since the beginning of the present century, the following table may be given. It gives the total number and capacity of licensed elevators annually from 1900 to 1923.

Year	Elevators and Warehouses	Capacity		Year	Elevators and Warehouses	Capacity	
		Bushels	Qrs.			Bushels	Qrs.
1900	523	18,329,352	2,291,169	1912	2,356	127,224,550	15,903,069
1901	631	22,549,000	2,818,625	1913	2,637	154,765,000	19,345,638
1902	822	29,806,400	3,725,800	1914	2,841	158,624,000	19,828,000
1903	983	40,636,000	5,079,500	1915	5,078	180,988,000	22,623,500
1904	1,023	46,403,630	5,800,454	1916	3,360	193,844,000	24,230,500
1905	1,109	50,453,200	6,306,650	1917	3,694	211,591,200	26,448,900
1906	1,273	55,222,200	6,902,775	1918	3,777	221,279,964	27,659,996
1907	1,354	58,535,700	7,316,963	1919	3,797	226,256,970	28,282,121
1908	1,487	78,016,100	9,752,013	1920	3,855	231,213,620	28,901,703
1909	1,840	94,266,100	11,783,262	1921	3,924	231,633,420	28,954,178
1910	1,941	105,462,700	13,182,838	1922	4,020	238,107,420	29,763,428
1911	2,068	108,649,900	13,581,240	1923	4,169	251,194,620	31,399,327

Thus, there were in 1923 a total of 4,169 elevators and warehouses with a capacity of 251,194,620 bushels, or 31,399,327 qrs., as compared with 523 with a capacity of 18,329,352 bushels, or 2,291,169 qrs., at the end of the last century.

The large terminal grain elevator at Port Arthur, which is owned and operated by the Canadian Government and known as the Canadian Government Elevator, has already been mentioned. This elevator I had the advantage of seeing personally under the guidance of Mr. R. Hetherington, Manager of the Canadian Government Elevators (*see* Fig. 9). Putting on a large overall to exclude dust, we inspected the whole building, and all the details of the mechanism were explained. The cars laden with grain come in on four lines of rail. The Winnipeg seal having been broken and the car opened, the grain flows down through iron gratings into underground hoppers, a carload at a time. The grain is then cleared from the underground hopper by leather belting about 3 ft. in width, at the rate of about 10,000 to 12,000 bushels per hour. A bell rings when the hopper is cleared; so that each carload is dealt with separately. On the conveyor the grain is carried into the "boot" of a "leg." From the "boot" it is elevated in buckets by another conveyor on the principle of a water-wheel. It then descends again by gravity into the garner above each weighing scale, and then after weighing it descends into the cleaning bins by means of an ingenious revolving overhead wheel which allows of the pipe through which the different grades of grain are delivered to be moved at will over the shafts of the bins to be used. From the cleaning bins the grain descends to the cleaner on the ground floor, and is then elevated from below the cleaner by the cleaning leg to the conveyor on the distributing floor above the storage bins, which consist of huge cylinders of reinforced concrete conspicuously visible from the outside. These are 90 ft. in height and 70 in number. These circular bins are placed close to each other, and the 54 spaces enclosed are also used as bins; so that no space is wasted. The grain then leaves the bins through the hopper bottom emptying on to the conveyor belt, whence it is carried to the boot of the elevator leg by which it is elevated to the garner above the shipping scale. After being weighed by the Government Weighman, it is spouted to the shipping bin, from which it is discharged through the hopper bottom and along the spout direct to the hold of the vessel. The shipping bin is located against the outer wall of the elevator, high enough to provide sufficient gravity for the grain to fall into the hold of the vessel completely emptying the bin.

At another large elevator, that known as "Grain Growers" Elevator "B," I saw a carload of wheat being unloaded by two men. On this occasion I was accompanied by Mr. E. A. Ursell, Statistician to the Board of Grain Commissioners, to whom I am indebted for much valuable information. The Winnipeg inspectors' seal was first broken. Then the sliding door was pushed back by a crowbar, and the inside grain door was carefully removed. The cars are lined with paper at the cost of $4 per car, and this is torn away. The paper is used as lining to prevent leakage of the grain by the jolting of the car in transit. The door being opened, a large part of the grain rushes down through the iron grating, previously mentioned. Then the men place two large flat boards about 3 ft. square, technically known as "shovels," behind the grain remaining in the car. These shovels are attached by chains passing over revolving drums, which being thrown into gear pull the shovels forward and so push the grain out of the car. This operation is repeated until all the grain is practically out, a final sweeping completing the business. The men were paid in October, 1923, at the rate of 37 cents per hour. When working at full pressure a car may be unloaded in seven minutes. Some cars have a tilting arrangement, but this takes longer, though not requiring so much manual effort.

TRANSPORTATION AND MARKETING

The movement of the great western wheat crop over thousands of miles of land, lake and ocean is an annual enterprise of very considerable proportions. The rail and steamboat companies have to make timely arrangements for the necessary cars and steamers, and it is of great importance to farmers that cars at local points should be available when required, and that local inconvenience due to shortage of cars should be reduced to a minimum. Under the Canadian and United States railway systems freight is transported through to destination without transfer, and Canadian cars may therefore be dispersed throughout the American continent. The cars required have therefore to be recovered in time for use in connection with the Canadian harvest. On the whole it is remarkable with what smooth celerity the recent huge wheat crops of the Dominion have been transported by rail and water, and the general movement during the season from September to the close of navigation on the St. Lawrence represents a triumph of successful concerted organisation. During the last two or three years the railway situation in Canada has undergone considerable development, and the principal railways of Canada, representing 85½ per cent. of the total railway mileage, are now consolidated into two great systems comprising that of the Canadian Pacific Railway Company and that of the Dominion Government under the name of the Canadian National. The total railway mileage of Canada is now 40,094, of which 13,658 miles are operated by the Canadian Pacific and 20,646 miles by the Canadian National. In 1923 there were altogether owned by the two systems 208,507 freight cars, with a capacity of 7,595,721 short tons. Of these 147,753 were box cars, with a capacity of 5,352,436 tons as used for the conveyance of grain. The average capacity of the box car is for wheat about 1,300 bushels, or 39 tons. The measurements of a typical car originally built for the Grand Trunk in 1911 and rebuilt in 1923, which I saw actually in use during my western visit in 1923, were 36 ft. long by 8 ft. 6 in. wide and 8 ft. high. It had a capacity of 2,448 cu. ft. for the carriage of 1,000 bushels, or 30 tons of wheat. The weight of the car unloaded was 19 tons. During the rush season as many as 40 trains of grain may daily enter the twin cities of Fort William and Port Arthur. A grain train may consist of 100 cars on the prairies, but the average is nearer 50 or 60 cars from Winnipeg to the two cities at the head of the lakes. One train during the fall of 1923, after the record harvest of that year, consisted, in fact, of 125 cars, being more than 1¼ mile in length, and conveying over 5,000 tons of grain. This train required two engines for haulage. Each car holds nearly 80,000 lb. of wheat, i.e. 40 short tons. The trains are usually drawn by single powerful engines, the traction being easier on the prairies because of the lower grades, but more difficult when nearer Fort William because of the steeper gradients. These heavy loads of grain are of course hard upon the road beds and rails, which have to be carefully watched and repaired. As over most of the western railways the track is only a single one, the traffic has to be so regulated as to admit of the safe running of express and other passenger trains.

The illustration (Fig. 10) gives a general view of the Canadian Pacific Railway yards at Winnipeg during the busy season, and also shows the nature of the box cars as described for the conveyance of grain.

Under Section 21 of the Canada Grain Act the Dominion is divided into two grain-inspection divisions, *viz.*, the western and the eastern. The western inspection division consists of the Prairie Provinces, British Columbia, the North-West Territories, and Ontario west of and including Port Arthur; and the eastern inspection division consists of Ontario east of Port Arthur and all the rest of eastern Canada. Following this legislative division it has been found convenient to trace the streams of grain movement from two imaginary grain pools: one the western and the other the eastern. The disposition of the large wheat crop of 1922 is thus graphically shown in the accompanying map (Fig. 11), which is derived from the Report on the Grain Trade of Canada for the crop year ended August 31, 1923, of the Internal Trade Branch of the Dominion Bureau of Statistics.

The total Canadian wheat crop of 1922 amounted to 399,786,400 bushels (49,973,300 qrs.). Of this total 375,194,000 bushels (46,899,250 qrs.) were produced in the three prairie provinces and the remaining 24,592,400 bushels (3,074,050 qrs.) in eastern Canada and British Columbia. The western pool consisted altogether of 389,261,208 bushels (48,657,651 qrs.), made up of the prairie crop of 375,194,000 bushels (46,899,250 qrs.), 1,035,000 bushels (129,375 qrs.) the produce of British Columbia, and 32,395 bushels (4,049 qrs.) the produce of Rainy River and Kenora, the two districts of Ontario which lie west of Port Arthur, a total western crop of 376,261,395 bushels (47,032,674 qrs.). On hand at the beginning of the crop year were 12,787,032 bushels (1,598,379 qrs.), and imports were received from the United States amounting to 212,781 bushels (51,123 bushels as shown in map and 161,658 bushels in the form of flour, these quantities making up the total pool of 389,261,208 bushels (48,657,651 qrs.). Of this quantity 37,995,560 bushels (4,749,445 qrs.) were retained for seed, 20,099,188 bushels (2,512,399 qrs.) were milled for home consumption, 3,908,183 bushels (488,523 qrs.) were milled for export, and 5,402,426 (675,303 qrs.) remained on hand at the end of the crop year on August 31, 1923. Of the balance of 321,855,851 bushels (40,231,981 qrs.), 130,405,958 bushels (16,300,745 qrs.) went into the eastern pool, 140,833,088 bushels (17,604,136 qrs.) were exported, and 50,616,805 bushels (6,327,101 qrs.) were lost in cleaning; 8,465,881 bushels (1,058,235 qrs.) were not merchantable; 9,222,000 bushels (1,152,750 qrs.) were fed on farms, or otherwise consumed in the western division; and moved out of the division through other channels, 32,928,924 bushels (4,116,116 qrs.).

In the eastern pool the crop was 23,525,005 bushels (2,940,626 qrs.) for Ontario (except Rainy River and Kenora), Quebec and the three Atlantic provinces. To this must be added the receipts from the western pool, *viz.*, 130,405,958 bushels (16,300,745 qrs.) and small imports from the United States and other countries amounting to 204,625 bushels (25,578 qrs.). With 3,225,941 bushels (403,243 qrs.) on hand at the beginning of the crop year we get 157,361,529 bushels (19,670,191 qrs.) as the total of the pool. Of this quantity 88,848,726 bushels (11,106,091 qrs.) were exported, 20,765,588 bushels (2,595,699 qrs.) were milled for home consumption, and 45,902,560 bushels (5,737,820 qrs.) were milled for export. For seed 1,786,705 bushels (223,338 qrs.) were retained, the loss in cleaning was 529,313 bushels (66,164 qrs.), and the grain unmerchantable was 577,000 bushels (72,125 qrs.). There remained at the end of the crop year 3,529,692 bushels (441,212 qrs.) on hand. These quantities make a total of 161,939,584 bushels, or 4,578,055 bushels more than the quantity reported as constituting the pool; and therefore representing the amount by which the figures fail to balance. Whilst the figures in the pool as shown on the map are identical with those given above, the figures of distribution representing shipments reported are somewhat different. The map serves, however, to show the various channels by which the grain leaves Canada, or is otherwise disposed of within the Dominion.

Amalgamating the figures for the two pools, we get a total for distribution of 416,216,779 bushels (52,027,097 qrs.), of which 360,139,598 bushels (45,017,450 qrs.) were exported, milled and retained for seed. The quantity on hand at the end of the crop year was 8,932,118 bushels (1,116,515 qrs.), the loss in cleaning was 8,995,194 bushels (1,124,399 qrs.), and the grain not merchantable was 9,799,000 bushels (1,224,875 qrs.). The balance of 28,350,869 bushels (3,543,858 qrs.) represents quantities fed on farms or otherwise consumed in Canada. It will be noticed from the map that of the total quantity of exports across the Atlantic 69,045,000 bushels (57,030,848 bushels viâ Quebec and Montreal, and 12,013,852 bushels viâ St. John, N.B., and 300 bushels viâ Halifax, N.S.) went from Canadian and 129,871,095 bushels from United States seaports. During the last two or three years the proportion of exports viâ Canadian ports has shown a tendency to increase, and for the fiscal year ended March 31, 1924, the exports of wheat viâ Canadian seaports were 116,228,184 bushels (14,528,523 qrs.) and those viâ United States seaports were 119,413,546 bushels (14,926,693 qrs.). The principal Canadian seaport for the shipment of grain to Europe is Montreal on the St. Lawrence River, and the illustration (Fig. 12) shows the loading of grain into ocean liners at Montreal Harbour.

The progress of the trade in wheat since the beginning of the present century is illustrated by the table on page 27, which shows the quantity of wheat exported to the United Kingdom, the United States and to countries other than these for each year since 1901, with the total exports of wheat and of wheat flour expressed as wheat. It will be seen that the total exports have increased from 1,846,738 qrs. (14,773,904 bushels) in 1901 to 38,698,426 qrs. (309,587,417 bushels) in 1924. For the fiscal year ended March 31, 1924, the exports, as shown in the table, constitute a further record, which, however, is exceeded by the quantity exported during the twelve months ended May 31, 1924, amounting to 341,941,840 bushels, or 42,742,730 qrs., and during the crop year ended August 31, 1924, amounting to 343,148,849 bushels, or 42,893,606 qrs.

The Winnipeg Grain Exchange is situated in the Winnipeg Grain Exchange Building, which is the largest office building in the Dominion. It consists of 10 floors, contains 150 offices, ranging in size from 100 to 4,000 sq. ft., and occupies a floor-space of 250,000 sq. ft. The Grain Exchange Trading Room is on the sixth floor, and is a large room running the whole length of the building. It occupies a total floor-space of 8,850 sq. ft. On a busy day in October, 1923, I had the advantage of witnessing the market in progress. The business is conducted in separate pits for wheat and for coarse grains (rye, oats, barley,

EXPORTS OF WHEAT FROM CANADA TO THE UNITED KINGDOM, THE UNITED STATES AND OTHER COUNTRIES, WITH TOTAL EXPORTS OF WHEAT FLOUR AS WHEAT, 1901–24.

Year ended March 31	United Kingdom	United States	Other Countries	Total Wheat	Wheat Flour as Wheat	Total Wheat and Flour as Wheat
	Qrs.	Qrs.	Qrs.	Qrs.	Qrs.	Qrs.
1901	1,078,758	6,648	132,063	1,217,469	629,269	1,846,738
1902	3,155,561	1,886	107,244	3,264,691	611,240	3,875,931
1903	3,840,868	111,613	170,737	4,123,218	724,368	4,847,586
1904	2,043,349	1,408	52,621	2,097,378	893,025	2,990,403
1905	1,410,051	377,279	50,209	1,837,539	743,326	2,580,865
1906	4,503,462	478,998	67,465	5,049,925	861,758	5,911,683
1907	3,054,098	100,617	30,300	3,185,015	614,319	3,799,334
1908	5,375,317	14,366	67,150	5,456,833	1,104,041	6,560,874
1909	5,736,406	81,325	324,450	6,142,181	977,646	7,119,827
1910	5,823,653	232,023	161,992	6,217,668	1,723,516	7,941,184
1911	5,454,703	30,332	240,229	5,725,264	1,715,088	7,440,352
1912	7,542,879	124,708	390,698	8,058,285	2,103,095	10,161,380
1913	9,715,308	1,229,316	701,127	11,645,751	2,518,899	14,164,650
1914	13,571,799	940,254	541,269	15,053,322	2,718,103	17,771,425
1915	8,037,650	511,504	440,019	8,989,173	2,785,689	11,774,861
1916	17,551,801	1,045,666	1,120,716	19,718,183	3,600,120	23,318,303
1917	19,005,403	2,275,035	2,425,042	23,705,480	4,176,969	27,882,449
1918	15,423,095	2,942,187	433,722	18,799,004	5,586,270	24,385,274
1919	4,664,706	249,051	312,355	5,226,112	5,178,059	10,404,171
1920	6,428,266	832,698	2,486,290	9,747,254	4,985,475	14,732,729
1921	3,661,826	5,290,612	7,199,456	16,151,894	3,384,580	19,536,474
1922	11,562,294	2,074,099	3,424,761	17,061,154	4,170,533	21,231,687
1923	20,855,870	2,026,703	4,001,747	26,884,320	5,752,721	32,637,041
1924	21,652,656	2,653,563	7,802,560	32,108,779	6,589,647	38,698,426

NOTE.—Wheat flour has been converted to wheat at the average rate of 4½ bushels of wheat to the barrel of flour of 196 lb.

&c.). I watched particularly the market for coarse grains. The fluctuations in prices were noted as they occurred by a telegraph operator in a pulpit, the prices being telegraphed out as recorded. Whilst being telegraphed they were intercepted by telegraphists within the Exchange who chalked them up on a large blackboard along the wall. The prices at other markets, such as Chicago, New York, Duluth, &c., were also chalked up in the same way. On another blackboard were the latest production estimates of the Dominion Bureau of Statistics for Canada and of the United States Department of Agriculture for the United States. A large meteorological chart gave the weather records from day to day at different points in Canada and the United States, as furnished by the Canadian and United States Government Meteorological Services, respectively. These weather reports have a marked influence upon prices, especially during the course of the growing season.

Having in a paper recently read before the Farmers' Club dealt somewhat at length with the costs of production and transportation, especially of wheat, I need not go greatly into detail upon these points now.[1] I would add, however, that since that paper was read, a report on the results of an inquiry into the average costs of grain production in Canada for the year 1923, carried out under my direction by the Agricultural Branch of the Dominion Bureau of Statistics, has been published. It shows that for the three prairie provinces the average cost per acre to farmers in 1923 of the production of wheat grown after stubble was 62*s.* 3*d.*, made up of the following items: Preparation of the soil, 11*s.*; seed, 6*s.* 1*d.*; seeding, 2*s.* 6*d.*; cultivation, 2*s.* 6*d.*; harvesting, 7*s.* 8*d.*; threshing, 10*s.* 10*d.*; cleaning and hauling, 6*s.* 1*d.*; wear and tear of implements, 2*s.* 6*d.*; rental value of land, 13*s.* 1*d.* For details in respect of each province and provincial subdivision, and for all crops dealt with, *viz.*, wheat, oats, rye, barley and flax, the reader is referred to the official report.[2]

The season of navigation from Montreal, the principal shipping point of Canada, runs from May to the end of November, the St. Lawrence River being ice-bound from December to April. Last year the ocean freight rates between Montreal and Liverpool averaged 8 cents per bushel for the season of 7 months, the cost ranging from 6·8 cents in June to 10·3 cents in November. Rail freights vary of course with distance, but taking the central point of Saskatoon in Saskatchewan, the rate by rail was last year 14·4 cents per bushel from that city to Fort William and Port Arthur. From these cities to the Georgian Bay the water freightage by lake steamers averaged about 4 cents and the rail freightage from Georgian Bay to Montreal was 8·6 cents per bushel. Altogether the average freight charges on wheat from Saskatoon to Liverpool, by rail, lake and ocean, averaged 35 cents, or 1*s.* 6*d.* per bushel. It is estimated that on the basis of last year's rates the cost of shipping 1,000 bushels of wheat from an average point in the prairie provinces comprises the following main items: freight by rail, £33 6*s.* 8*d.*; freight by inland waters, £18 8*s.* 6*d.*; ocean freight, £13 16*s.*; handling charges (commission, fees, interest, loading charges, &c.), £19 6*s.* 8*d.*; insurance, £3 7*s.* 8*d.* These items make a total of £88 5*s.* 6*d.* for 1,000 bushels, representing about 1*s.* 9*d.* per bushel.

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[1] Canadian Farming with Special Reference to Costs of Production and Conveyance of Produce to English Ports, *Journal of the Farmers' Club*, June, 1924.

[2] *Cost of Grain Production in Canada*, 1923, Dominion Bureau of Statistics, Ottawa, 1924.

Governing the whole arrangements for the production, transportation and marketing of the Canadian grain crops, is the important question of finance, and this is in the hands of the Canadian banks. Credit is necessary to enable the elevator companies and commission merchants to pay cash to the farmer for wheat on delivery, and the amount annually required for financing the grain crop is about $100,000,000, or say £20,000,000. Under this system the farmer is not compelled to wait for a purchaser, but can dispose of his crop for cash as soon after it is threshed as he desires to do so. Having paid the farmer for his wheat at current quotations, the elevator company resells through the Grain Exchange, and thus protects itself against a possible decline in values, besides keeping credit in circulation.[1] During the crop-moving season from September to February inclusive, the banks are allowed, under legislation of the Dominion Parliament, to issue emergency excess bank-note circulation up to 15 per cent. of their combined paid-up capital and reserve or rest fund, this emergency excess circulation being taxed at the rate of 5 per cent. per annum.

FLOUR AND GRIST MILLING INDUSTRY.

In addition to the trade in grain itself, the flour and grist milling industry has long held an important place amongst the manufacturing industries of Canada. Indeed, judged by the value of the production, it occasionally occupies the first place, the slaughtering and meat-packing industry being in this respect a close rival. Flour milling in Canada dates back to the earliest times, and it was at Port Royal (now Annapolis) in Nova Scotia that the first water-wheel to turn a millstone for the grinding of wheat was erected on the North American continent. The progress of the industry since that date is described in a report of the Dominion Government.[2] Here it need only be stated that the industry became firmly established during the decade 1831 to 1840. At the present time the total number of flour mills is 1,333, with a total daily capacity of 128,225 barrels of flour, the barrel containing 196 lb. of flour. Of this quantity over 110,000 barrels per diem are represented by 163 large merchant mills. Canada possesses what is claimed to be the largest flour mill in the British Empire, this mill possessing a capacity for the production of 14,000 barrels of flour daily. As further showing the dimensions of this trade, it may be stated that, according to the last Industrial Census of Canada, the number of Canadian milling establishments in 1922 was 1,364, representing a capital of about £15,211,974. The number of employees was 6,757, to whom were paid salaries and wages amounting to £1,664,526. The value of the raw materials used was £30,374,906, and the total value of the products was £37,084,768. Of the total production of wheat flour, amounting to 19,060,020 barrels in the calendar year 1923, 7,861,385 barrels were milled for home consumption and 11,198,635 barrels were exported to other countries. Of the exports in the fiscal year ended March 31, 1924, amounting to 11,714,929 barrels, 4,234,084 barrels, or 36 per cent., went to the United Kingdom, 1,733,916 barrels to other parts of the British Empire, and 5,746,929 barrels to 48 foreign countries in all parts of the world. These countries included China, taking 504,923, Cuba 252,647, Denmark 296,122, Egypt 140,276, Finland 238,747, Germany 1,986,826, Greece 271,113, Japan 111,965, Holland 249,034, Norway 456,495, Poland 319,427, Sweden 120,950, United States 221,641, and Venezuela 128,684 barrels. Wheat is of course the principal product milled, but other products include oatmeal, rolled oats, barley flour and meal, pot and pearl barley, rye flour and meal, corn flour and meal, cracked corn, buckwheat flour, pea meal and split peas. There is also a considerable trade in chopped-grain feed produced from mixed grains, as well as in offal products.

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[1] *Canadian Wheat and Wheat Flour*, Publications Branch, Department of Agriculture, Ottawa, 1924, p. 26.

[2] *The Flour and Grist Milling Industry in Canada*, 1921, Dominion Bureau of Statistics, Ottawa, 1923.

FUTURE DEVELOPMENTS.

Independently of grain shipped into the United States for use in that country, the main outlets for Canadian-grown grain have for many years been either through the Canadian Great Lakes and by Canadian canals and railways to the eastern seaboard, or through the United States to American seaports. It has long been considered desirable that the railway land haul should, if possible, be shortened, and that additional outlets should be provided for Canadian grain. Several projects have at various times received much attention on the part of the Dominion Government. Some of them, like the Georgian Bay scheme, involve so great a cost as to be considered impracticable of present realisation. But with regard to one of them, the provision of an additional outlet for Canadian grain by the Hudson Bay route, considerable progress has already been made. The route for the Hudson Bay railway lies between The Pas, Manitoba, where connection is made with the Canadian National Railway, and Port Nelson on Hudson Bay. The distance is 424 miles, and the work of construction was placed under contract in August, 1911. The war, of course, interfered with the execution of this project, but in 1920 it was reported that the line had been graded and the track laid from Pas north to the second crossing of the Nelson River at Kettle Rapids, a distance of 334 miles, to which point also telegraphic communication had been established. All bridges up to and including Kettle Rapids had been completed, but two bridges had yet to be constructed between that point and Port Nelson. Considerable progress has been made on railway terminals, docks and other harbour works at Port Nelson, and the total expenditure to March 31, 1919, was $20,796,445. The railway will in any event open up a considerable extent of new country; but at present it is somewhat doubtful as to whether the exportation of grain by the proposed Hudson Bay route will become a practical reality. The water route through Hudson Bay is open only for about three months in the year, and the time between harvesting and the close of navigation is even shorter. Time and trial alone can settle the value of the project.

The opening to traffic of the Panama Canal in 1914 marked the completion of a great enterprise, and Canadians were not slow in availing themselves of this new route for the shipment to Europe of commodities. Having to pass through tropical temperatures, there is more risk of damage and spoliation to wheat and other food products; but already a beginning has been made in the successful exportation of grain through the Panama Canal to the United Kingdom and other transatlantic countries without serious deterioration. There is also evidence of a growing trade in Canadian grain and flour with Oriental countries. For this trade and for that viâ the Panama Canal the port of Vancouver in British Columbia will increase in value. The exports of grain viâ Vancouver, mostly for shipment through the Canal, have increased from 7,843,838 bushels (980,480 qrs.) in 1921–2 to 50 million bushels (6,250,000 qrs.) in 1923–4, all but about 5 per cent. being wheat.

A project now engaging serious consideration is the deepening of the St. Lawrence waterway, by which ocean-going steamers could load grain at the head of the lakes (Fort William and Port Arthur) and so save the heavy costs of unloading and reloading, as well as the long eastern land haul. The proposal is that this important and costly enterprise shall be jointly undertaken by Canada and the United States, the former country being chiefly interested from the point of view of the grain trade, whilst the United States would derive great commercial advantages through the possibility of shipping the manufactures of cities on the Great Lakes in ocean-going vessels both to other American ports on the Atlantic seaboard and also to transatlantic countries.

Future developments of the Canadian grain trade must, however, also depend to a large extent upon the progress of settlement. Vast areas of fertile lands in Canada still await the plough. It is estimated that the areas of public lands available for more or less immediate settlement is upwards of 76 million acres. The total area in Canada possible of devotion to agriculture may be roughly placed at between 300 and 400 million acres.

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BRITISH WOOLS.

I. RECENT WOOL RESEARCH.

IN order that certain characteristics of British wools may be fully appreciated, reference must first be made to several recent researches which have thrown much light upon the origin of our domestic sheep and more particularly upon the possibilities of modifying our present-day sheep in view of the prospective requirements of the sheep-breeders of our Overseas Dominions, and of the wool markets of the world.

It now seems to be possible to refer back all our domestic sheep to a short-tailed type of sheep which appears to have existed in a very slightly modified form the world over. Thus one cannot view the Argali, Moufflon, Urial and Soay sheep without being impressed with the uniformity in type there seems to have been, going back even a few thousand years, although the last-mentioned sheep—the Soay—does possess a differentiating characteristic to which reference will shortly be made.

The supposition that the sheep got its tail during the period of desiccation of Central Asia on the retreat of the glaciers northward, at the same time that the camel got its humps, now seems to be a quite reasonable hypothesis. And if the tail has been lengthened by natural selection, may it not also be shortened by artificial selection? It should not be difficult to obtain a useful short-tailed sheep unless it should turn out that the long tail and white coat are linked together. Now it is a remarkable fact that with the exception of the Herdwick breed we have no piebald British breed of sheep, and it would be a positive calamity from the wool point of view were this otherwise. Thus if the long tail could not be eliminated without the introduction of colour into the coat, it would be far the wisest plan to keep to the pure white coat even with the long tail. In this country and in the Overseas Dominions a short-tailed sheep would probably be advantageous, and experiments might well be undertaken with the short-tail in view, all the time keeping an eye on the colour.

The next point which is now clearly in evidence is that while the wild sheep was normally a double-coated animal, our present-day sheep show the following modifications in their coats:

(*a*) Single under-coated (wool)—Merino sheep;
(*b*) Single outer-coated (hair)—Torrid Zone sheep;
(*c*) Double-coated (wool and hair)—Wild sheep;
(*d*) Mixed-coated—Blackface (Scotch) sheep.

The Soay sheep is really a single-coated (wool) animal, but still shows traces of hair, while more interesting still the discovery has only just been made that Merino lambs usually show the double-coat (see Fig. 1), the hair falling off a few months after birth. The production of the more deeply-rooted hair as against the more shallow-rooted wool is a difficult problem to tackle. Both growths may be due to one natural stimulant, and the production of hair or wool dependent upon the presence or absence of the respective follicles; or there may be a natural stimulant (hormone), or quantity of stimulant, for each type of fibre; or the results observed may be a combination of these influences. The fact that the under-coat of the Ovibos and the coat (under) of the Soay sheep is shed yearly—as against no such periodicity in the case of the hair of the Ovibos, or the wool of the domestic sheep—is suggestive. There is obviously

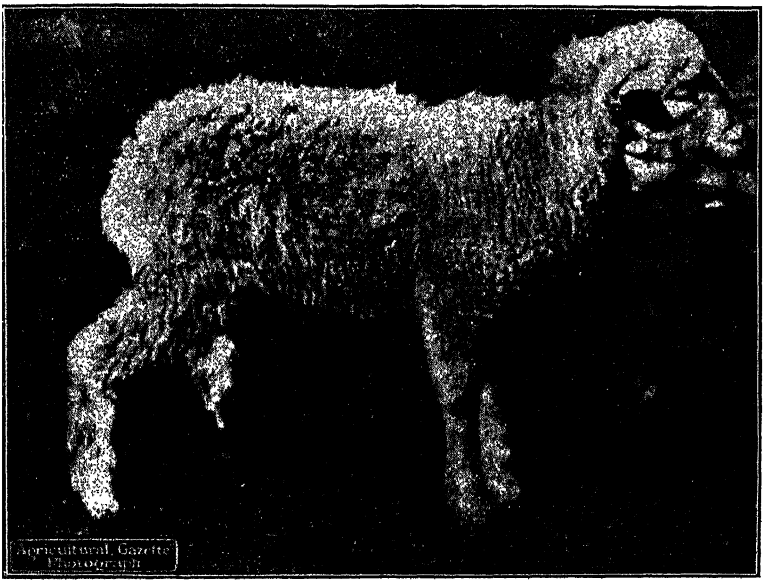

Fig. 1.—Merino Lamb, showing double coat.

much room for research on the mechanism of wool fibre production. The fact that the Manx sheep has the same face (hair) colour, as fleece (wool) colour, but that the wool colour appears to fade, while the hair colour does not, is again suggestive of the double-hormone solution.

Another interesting observation recently made with reference to the sheep is that there appear to be two distinct types—gregarious and non-gregarious. The fact that the Merino sheep of Camden Park (Captain Macarthur's early strain of about 1820), and the Peruvian Merino (which would undoubtedly be taken to Peru by the Spaniards) are practically identical [1] is strong evidence suggesting that there was a typical Spanish Merino from which all other Merinos have been derived. If this be so it is not surprising to find that the driving of these sheep up and down narrow valleys for generation after generation has impressed the gregarious habit firmly on this sheep's nature. Of course there is the alternative suggestion that the gregarious habit has been an advantage to the sheep during its mountain travels, and that "natural selection" may account for the trait observable. Whichever is the explanation, it does seem as though the gregarious character was ingrained into the Merino sheep of to-day.

On the other hand the English sheep—Leicesters, for example—show a disposition during feeding to spread out, and it has been suggested that this character is due to their having been brought across the European Continent into the North of England by the Nordic or other migrating people, the non-gregarious habit being an advantage during their progression westward.

However this may be, the fact remains that certain Merino-cross types are reported by both British and Australian sheep-breeders to show the sometimes disadvantageous gregarious character. The suggestion has further been made that the gregarious character is a cytoplasmic factor and as such may only be inherited from the mother. The importance of this to those who naturally wish to use their pasturage to the greatest possible advantage will be well understood from Figs. 2 and 3.

Reference has already been made to the desirability of keeping coloured fibres out of the coats of all sheep. The elimination of coloured fibres from the Herdwick breed of sheep is both hopeless and undesirable—as will be shown later, but an important point is raised by the discovery of the fact that many white sheep are really blacks masquerading as whites. Thus most typical Wensleydale sheep have the black factor, although only 15 per cent. throw blacks. In this sheep, however, the evil is not so insidious, for the sheep is practically always white, silver-grey or black, thus "classing" of the fleeces is all that is

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[1] *Journal of the Society of Arts*, Nov. 7, and Nov. 14, 1924.

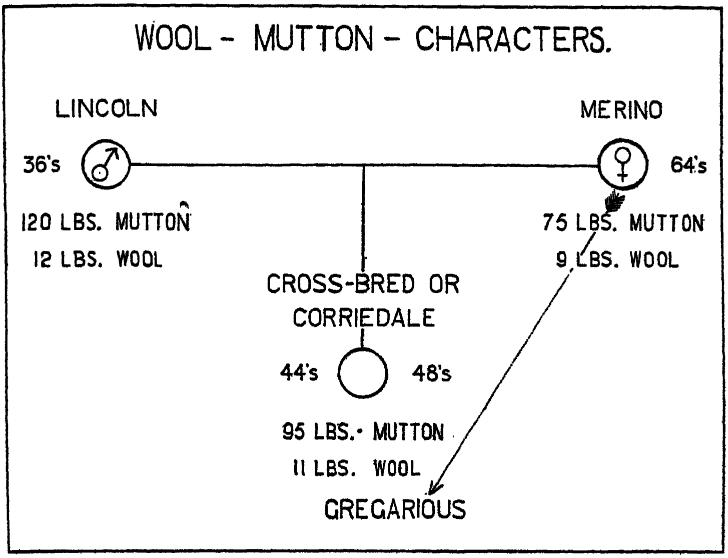
WOOL - MUTTON - CHARACTERS.
LINCOLN
MERINO
36's
♂
♀
64's
120 LBS. MUTTON
12 LBS. WOOL
75 LBS. MUTTON
9 LBS. WOOL
CROSS-BRED OR
CORRIEDALE
44's
48's
95 LBS. MUTTON
11 LBS. WOOL
GREGARIOUS

FIG. 2.

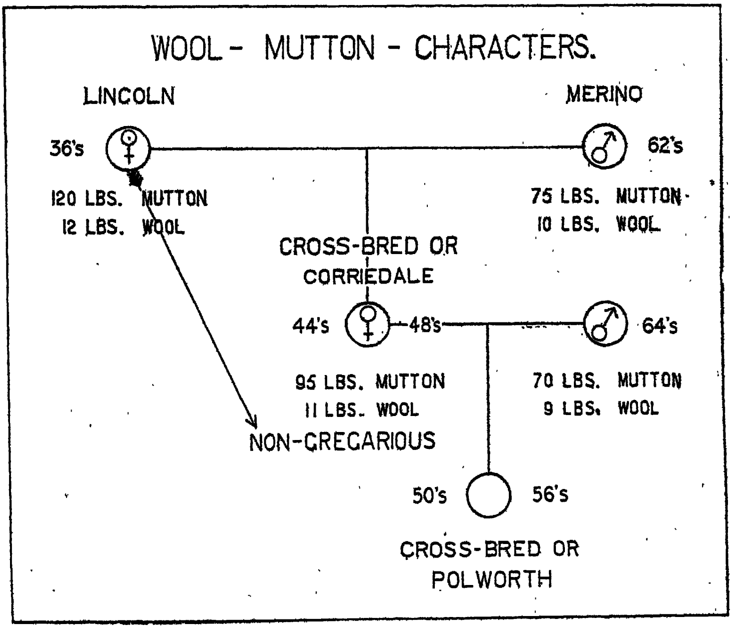
WOOL - MUTTON - CHARACTERS.
LINCOLN
MERINO
36's
♀
♂
62's
120 LBS. MUTTON
12 LBS. WOOL
75 LBS. MUTTON
10 LBS. WOOL
CROSS-BRED OR
CORRIEDALE
44's
♀
48's
♂
64's
95 LBS. MUTTON
11 LBS. WOOL
70 LBS. MUTTON
9 LBS. WOOL
NON-GREGARIOUS
50's
56's
CROSS-BRED OR
POLWORTH

FIG. 3.

necessary. In the case of the black-faced Down sheep—Suffolks, Hampshires, Oxfords, and Shropshires—the more insidious single-coloured fibre defect is in evidence, and the question as to whether this defect can be eliminated from these breeds is of the greatest importance. Now Mr. F. W. Dry, the Ackroyd Research Fellow of the University of Leeds, has been able to discover records of Wensleydale Rams which have never got a black lamb, and observation made on even the Suffolk flocks have suggested the possibilities of a pure white strain. In this latter sheep, however, we still know nothing of the causes of the dark colouring of the lambs at birth, and of the curious mottled lambs (see Fig. 4), which are apparently the result of crossing the Old Norfolk with the Southdown. If the sheep-breeder would seriously tackle the coloured-fibre problem he would so benefit the industries dependent upon white wools that he might reasonably hope to reap a very substantial financial advantage.

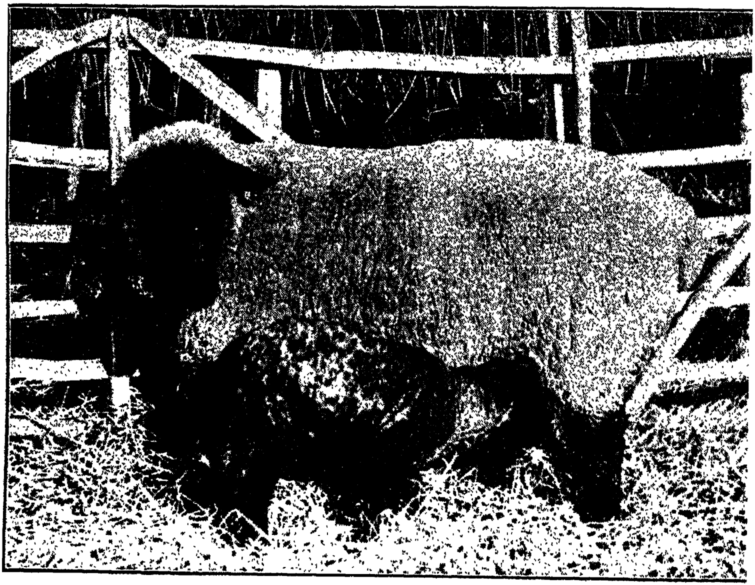

Fig. 4.—Mottled Suffolk Lamb.

The suggestion that the quantity of the "hormone" controls the stimulation of the colour factor in sheep is made in the light of the fact that the blacker the face of the Scotch Blackface sheep, the greater is the tendency for the colour to creep down the neck and into its fleece.

2. British Pedigree Sheep.

In the British Isles there are some 30 typical breeds of sheep, and possibly some hundreds of crosses of these breeds yearly produced. There is here evidence of the necessity for some scheme or "gamut" in studying the various breeds of sheep. Still more is the necessity for such a scheme in evidence when wool is to be studied; for under the Wool Control Scheme, instituted during the Great War, it was found necessary to make nearly nine hundred types of Colonial wools.[1] America sometime ago realised the desirability of some simple scheme of wool classification, and although there is an attempt to "laugh out of court" any such scheme—possibly only on the part of those engaged in the wool trade whose business success is in proportion to other people's ignorance or disorganisation—it would be much more to the point if all interested in the wool trade would take some such scheme as that offered by Professor Cossar Ewart's researches, and re-model it to fill the practical requirement of the industry. Such a scheme is given in Fig. 5, this being based upon the evolution of the domestic sheep already referred to, an addition to the sheep and wool types being the typical fabrics into which each class of wool may be manufactured. It is questionable whether a better scheme than this can be produced, the chief additions called for being the more refined gradation of wools between the types here given. It does seem that if British wool producers and consumers were as progressive in outlook as their American cousins, they would utilize this advantageous scheme of classification ready to hand and carry the world with them; for there should be no difficulty in defining the quality grades in question by fibre diameter and other measurements, which would cover even the wools, say, of France.

In List 1 the principal British Pedigree Breeds of Sheep are given with wool fibre diameters, lengths, waves, and percentage of black fibres.

Before proceeding to a detailed consideration of this list further reference to the sheep types themselves is desirable, with perhaps a few words of advice to sheep-breeders with special reference to the types of wool likely to be in demand in the future. Broadly speaking, it may be stated that in this country we can produce four types of wool, and that the truer to type any given wool is, the greater its value; and conversely the more nondescript the wool is, the less its value. Thus taking the four types indicated in List 1, the following notes may be usefully considered:

Mountain Breeds.—The typical sheep in this case is the Herdwick. Owing to its multi-coloured fleece and the double

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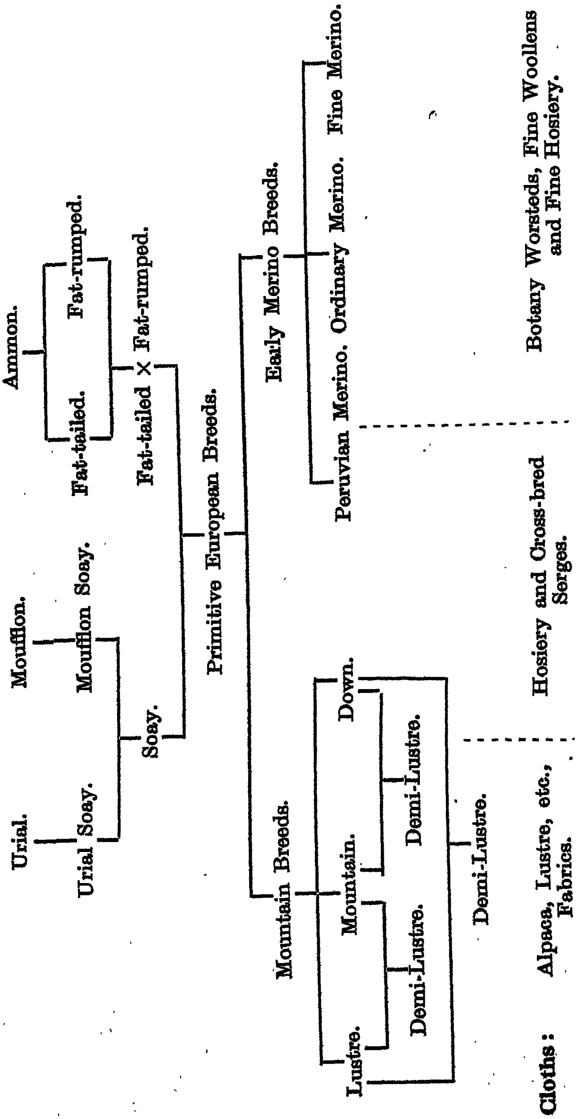
[1] See *Journal of the Textile Institute* for Feb., 1924.

FIG. 5.—EVOLUTION OF THE DOMESTIC SHEEP.



LIST I.—PARTICULARS RESPECTING BRITISH PEDIGREE WOOLS.

Breed	Average Diameter	Minimum Diameter	Maximum Diameter	Average Length	Minimum Length	Maximum Length	Average Waves per 1 in.	Percentage of Black Fibre
	ins.	ins.	ins.	ins.	ins.	ins.	ins.	%
Mountain Wools :								
Blackface	1/469	1/1312	1/147	11·22	8·0	13·5	—	14
Herdwick	1/525	1/1500	1/198	7·62	4·5	12·0	—	30
Welsh (White) . .	1/592	1/1050	1/300	3·67	2·75	4·75	4·6	0
Lonk	1/620	1/1166	1/328	6·72	4·50	9·0	3·65	12
Swaledale Dales . .	1/675	1/1500	1/250	7·70	5·0	12·0	—	18
Welsh (Black). . .	1/749	1/1750	1/283	4·02	2·5	5·5	5·45	96
Lustre Wools :								
Lincoln	1/552	1/875	1/350	8·05	6·5	10·0	2·30	0*
Devon Longwool .	1/582	1/1500	1/420	9·10	5·5	11·0	1·77	0
South Devon . . .	1/594	1/954	1/420	10·95	8·0	13·0	3·55	—
Leicester	1/614	1/1500	1/328	12·02	6·0	15·0	2·05	0
Dartmoor	1/642	1/1166	1/338	11·15	9·0	14·5	1·75	1
Cotswold	1/646	1/1166	1/456	10·75	8·0	14·0	2·27	0
Wensleydale . . .	1/647	1/1312	1/388	12·70	6·5	16·0	2·42	10
Border Leicester . .	1/712	1/1166	1/500	7·85	5·0	9·5	3·3	0
Demi-Lustre Wools :								
Cheviot	1/681	1/1500	1/276	4·70	2·75	6·5	5·80	2
Exmoor Horn. . .	1/692	1/1312	1/420	3·81	2·0	5·0	6·95	0
Romney Marsh or Kent	1/701	1/1500	1/477	6·30	4·50	8·0	4·65	0*
Half Bred Leicester .	1/703	1/1312	1/388	6·10	4·75	7·25	4·80	1
Kerry Hill. . . .	1/714	1/1312	1/437	3·82	2·50	5·0	4·2	0
Down Wools :								
Dorset Down . . .	1/651	1/1166	1/338	2·90	2·0	3·75	6·0	0
Dorset Horn . . .	1/658	1/1166	1/262	3·17	2·0	4·5	5·8	0*
Oxford Down . .	1/700	1/1166	1/437	4·03	3·0	6·0	6·4	10
Suffolk Down . .	1/723	1/1500	1/456	3·95	3·0	5·0	7·1	8
Hampshire . . .	1/737	1/1312	1/420	3·70	2·0	5·0	7·6	7
Ryeland	1/741	1/1500	1/250	4·40	3·0	6·0	5·75	—
Shropshire. . . .	1/817	1/1312	1/500	2·50	1·75	3·25	6·1	3
Southdown . . .	1/879	1/1500	1/500	3·67	2·5	4·5	9·6	0

* Very clear of black fibres.

or nondescript coat which it possesses, it should be the best wool grown for rough tweeds of the types—very smooth from the finer qualities of its wool, and rough from the rougher qualities. Not a pound of this wool ought to go from this country, but all should be manufactured into such ranges of tweeds as those shown by the University of Leeds at the Leicester Show of 1924.

Blackface, Swaledale, and Lonk wools are so much better than Herdwick wool that they are actually worse for the purposes defined above; while Welsh Mountain wool, being still better in quality, is farther from the Herdwick, but nearer to the Down wools, and at least for the time being as likely to fetch a better price as inferior Down wool, rather than as typical Mountain wool.

Lustre Breeds.—The typical sheep in this case is the Leicester: Lincoln wool tends to be rather too strong in the wool, although excellent as a cross with Merino or other sheep. Any individual sheep, or breeds of sheep, which show the dead non-lustre fibre of the Mountain type, or the fuzzy equally non-lustre fibre of the Down type, are to be avoided. In this class the Wensleydale rightly claims special mention as being not only the most lustrous of our wools, but as showing a beautiful " wave " which can be carried through into the cloth as shown in Fig. 6.

Demi-Lustre Breeds.—The typical sheep here is the Romney Marsh, although this statement should be qualified with the statement that this sheep has a tendency to produce a strong britch, which should be rigorously guarded against. In this class the tendency usually should be to breed towards the Down type, so long as a good length of staple is maintained. If, however, lustre wools happen to be popular the demi-lustres may be bred as near to lustre wools as possible. North wool, i.e., Cheviot X Border Leicester, under these circumstances would be an ideal cross, particularly if well selected. Wensleydale X Blackface or Wensleydale X Blackface-Wensleydale would also be a good cross. The Cheviot sheep produces a crisp wool which may be equalled, but not excelled for the world-famous Cheviot Tweeds.

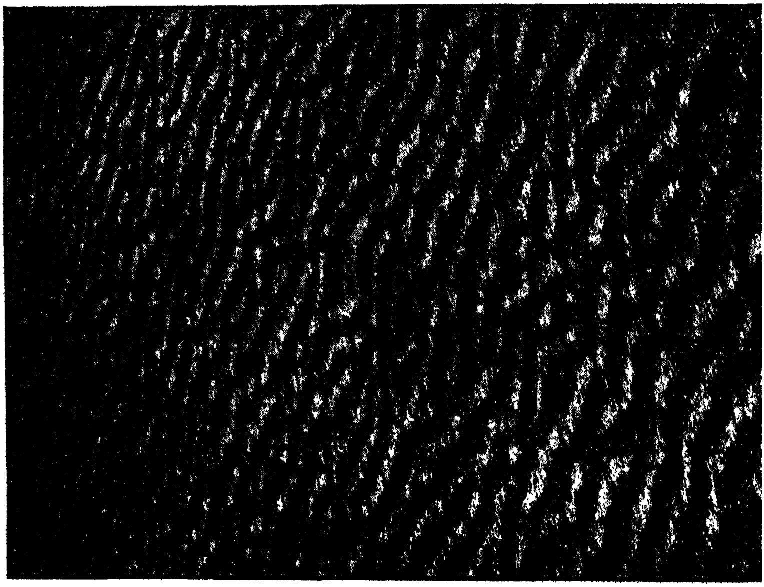


FIG. 6.—Wensleydale Wool "Waved" Fabric.

Down Breeds.—These breeds may best be defined as sheep in which the crisp wool-character of the Mountain breed has been combined with the fine wool-character of the Merino. Wherever one touches the Down breeds the Merino base is in evidence, but it is quite evident that in the typical Down breed—the Southdown, for example—the wool-characters have been so fixed that to all intents and purpose this is a pure breed. Unfortunately many of the Down breeds, as already noted, having a black-factor in their constitution, tend to produce black hairs, and this absolutely rules them out of certain better-class trades, very markedly taking from their value. There is one Down breed—Dorset Horn—remarkably free from black fibre, and if this breed could be selected to produce a rather finer fibre it would rival the Southdown in excellence.

In view of the present-day values of the different typical wools, and of the likelihood of the maintenance of such values, the advantage of breeding to one or other of the foregoing types is so important that the desirability of keeping this in mind is again emphasised.

3. BRITISH PEDIGREE WOOLS.

Useful particulars respecting these wools are given in List I, but something additional to this is called for, so far as fibre diameter is in question. In Fig. 7 the frequency curves for four typical wools are given, and the value of such curves, as against the mere statement of "average fibre diameter," will be at once realised. The extraordinary long base of the Blackface analysis as compared with the short base of the Southdown is of course to be attributed to the fact that in the Blackface we are dealing with the double-coat—hair and wool—while in the case of the Southdown there is probably only one coat—the under—to be dealt with. Frequency curve fibre-analysis of this type is only just coming into use, but it may be emphatically stated that such analysis is going to prove of very great value to the manufacturer as giving some indication of how the fibre will respond to the various manufacturing processes; the sheep-breeder will be well advised to equip himself for such analysis, and to at least base his selection of rams for breeding purposes upon the frequency curves of representation staples of their wools. The University of Leeds has just sent out to East Africa the first sheep breeder fully equipped for such work!

In List II an approximate "quality percentage" for each of the pedigree wools is given, this having been compiled by Mr. Foster Pickles, of the Leeds University, from the typical pedigree skins which have been kindly supplied by the respective sheep-breeding associations. Before carefully examining this list it may be well briefly to define what is meant by the term "quality," for as the value likely to be realised is partly dependent upon "quality," it will well pay the sheep-breeder to fully realise what the "quality number" or numbers mean. The wool-classer, dealing with entire fleeces at the classing-table on the sheep-station, and the wool-sorter, sorting the individual fleeces into from three to seven qualities, are both, almost without exception, taking average fibre diameter as their basis. Sometimes length is also specified—for example, a 60's quality may be sorted as a "long 60's," and a "short 60's," but even such designation is, after all, only a further qualification of the fibre already defined as a 60's. Taking the Bradford wool-sorters' qualities as a basis

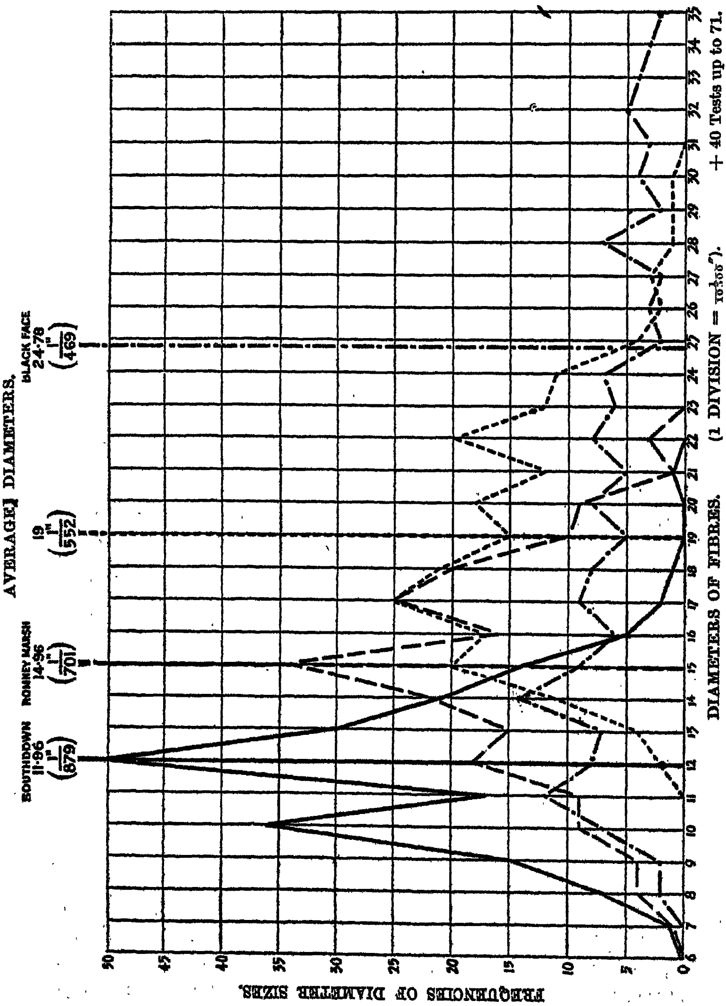


FIG. 7.—Diameter frequencies (200) of four representative wools.

QUALITY ESTIMATIONS MADE FROM WOOLLED SKINS.

LIST II.—PROPORTIONATE PERCENTAGE WEIGHTS OF BRITISH PEDIGREE WOOLS OBTAINED BY SORTING FLEECES INTO THE VARIOUS QUALITIES.

	Low	28's	32's	36's	36's Shorts.	40's	40's Shorts.	46's	:46's Shorts.	50's	50's Shorts.	56's
		%	%	%	%	%	%	%	%	%	%	%
Mountain Wools:												
Blackface .	30	50	20	—	—	—	—	—	—	—	—	—
Herdwick . .		60	40	—	—	—	—	—	—	—	—	—
Welsh, White .		10	10	46	—	34	—	—	—	—	—	—
Lonk . . .		—	19	36	—	45	—	—	—	—	—	—
Swaledale Dales		60	30	10	—	—	—	—	—	—	—	—
Welsh, Black .		—	8⅓	25	—	33⅓	—	33⅓	—	—	—	—
Lustre Wools:												
Lincoln . . .		—	15	40	—	45	—	—	—	—	—	—
Devon Longwool		10	42½	37½	10	—	—	—	—	—	—	—
South Devon .		—	15	40	—	45	—	—	—	—	—	—
Leicester . .		—	—	10	—	40	5	45	—	—	—	—
Dartmoor . 1		7½	45	22½	—	20	5	—	—	—	—	—
Dartmoor . 2		—	—	60	—	40	—	—	—	—	—	—
Cotswold . .		—	15	45	—	40	—	—	—	—	—	—
Wensleydale .		—	—	—	—	—	—	—	—	—	—	—
Border Leicester		—	5	10	—	40	—	45	—	—	—	—
Demi-Lustre Wools:												
Cheviot . .		10	12½	30	—	22½	—	25	—	—	—	—
Exmoor Horn .		—	—	7½	—	40	—	36	—	22½	—	—
Romney Marsh or Kent . .		—	7½	7	—	44	—	34	7½	—	—	—
Leicester Half Bred . . .		—	—	—	—	—	—	—	—	—	—	—
Kerry Hill . .		—	—	40	—	33⅓	—	26⅓	—	—	—	—
Down Wools:												
Dorset Down .		—	—	—	—	—	—	5	—	30	—	65
Dorset Horn .		—	—	—	—	—	—	16	—	42	—	42
Oxford Down .		—	—	—	—	—	—	7½	—	50	2½	40
Suffolk . . .		—	—	—	—	—	—	5	—	45	—	50
Hampshire (Lambs' Skin)		—	—	—	—	—	—	—	—	7½	—	92½
Ryeland . .		—	—	10	—	30	—	30	—	25	5	—
Shropshire . .		—	—	—	—	—	—	7½	—	47½	5	40
Southdown. .		—	—	—	—	—	—	19	—	45	—	36

Mr. Henry Wilkinson has evolved the following rule for linking up diameter (*d*) with quality number (*q*):

$$d = \frac{1}{1{\cdot}52q^{1{\cdot}68}}.$$

Thus if a wool has been classed as a 48's quality, its average fibre diameter should be:

$$\frac{1}{1{\cdot}52\ 48^{1{\cdot}68}} = \frac{1}{744}.$$

Conversely, if a wool-fibre under the microscope is found to have a diameter of $\frac{1}{700}$, then as

$$\text{Log } q = -\frac{1}{1{\cdot}6}\ (\text{Log } 1{\cdot}52 + \text{Log } d)$$

$$\therefore \frac{1}{744} = 48\text{'s quality.}$$

In List III the relationships of particular fibre diameters to the Bradford quality numbers are given.

LIST III.—THE RELATIONSHIP BETWEEN QUALITY NUMBER AND FIBRE DIAMETER.

Bradford Quality Number.	Diameter by Formula	Bradford Quality Number	Diameter by Formula
28's	1/314″	56's	1/953″
32's	1/389″	58's	1/1007″
36's	1/470″	60's	1/1064″
40's	1/595″	64's	1/1180″
44's	1/648″	68's	1/1299″
46's	1/696″	70's	1/1361″
48's	1/744″	80's	1/1686″
50's	1/795″	90's	1/2034″
52's	1/846″	100's	1/2408″
54's	1/899″	—	—

In the old days British wool-sorters sorted under such terms as "Picklock," "Prime," "Choice," "Super," "Abb," etc., for the finer wools, and "Blue," "Neat," "Brown," "Brokes," etc., for the lustre and demi-lustre wool. Even to-day the sorter of English wool is liable to revert to such terms, as indicated in the following examples of the sorting of British fleeces.

LIST IV.—THE SORTING OF TYPICAL WOOLS AND HAIRS.

Merino.

Shirlings.
Brown pieces and kempy.
60's. }
70's. } Bulk sort.
80's and occasionally higher.

Lincoln.

Tar-bits.
Low shorts.
Shirlings (bits with dung attached).
Kempy, grey, and brown pieces.
28's }
Britch } (If necessary also one termed "tail.")
32's.
36's. Bulk sort.
40's.
40's short.

Persian.

Shirlings.
Britch.
36's white.
40's white.
36's brown. Bulk sort.
40's brown.

Southdowns.

Shirlings.
Grey, kempy, and brown pieces.
Britch.
40's.
44's.
46's.
50's.
56's. Bulk sort.

Blackfaced Scotch.

Tar bits and shirlings.
White britch.
Grey britch.
32's grey. Bulk sort.
40's white.

Sorting Analysis of Lincoln Hogs.

Blue (40's)	40%
Neat (36's)	30%
Brown (32's)	10%
Brokes (30's)	10%
Britch (28's)	10%
	100%

The meaning of "quality," however, may well be carried a stage farther, for fundamentally it has reference to the length to which a given weight of wool will spin. Thus the Leeds woollen spinner employs as a weight basis the wartern of 6 lb. (the quartern of the old 24 lb. stone) and takes as a spinning base 1,536 yards. Thus—

If 6 lb. is drawn out to 1,536 yds. the skeins is 1's;
" " " " 2 × 1,536 " " " 2's;
" " " " 3 × 1,536 " " " 3's, etc.

But the Leeds woollen spinner never appears to have linked up his skein (or count) number with any quality number.

On the other hand the Bradford worsted spinner employs as a weight basis 1 lb., and takes as a spinning base 560 yards. Thus:

If 1 lb. is drawn out to 560 yds. the count is 1's;
" " " " 2 × 560 " " " 2's;
" " " " 3 × 560 " " " 3's, etc.

Thus a 48's quality is so named because it is supposed to spin out to—

48 × 560 = 26,880 yards per lb.;

60's quality is supposed to spin out to—

60 × 560 = 33,600 yards per lb.; and so on.

As a matter of fact the spinning qualities of any fibre are usually at least 10 per cent. below the sorting quality number, and the maintenance of the standard qualities in sorting is not an easy matter. The "qualities" of the sheep-station "classer," and of the Yorkshire "wool-sorter," are, however, remarkably consistent.[1]

In view of the desirability of world standards the relative British and other standards are given in List V.

LIST V.—THE WORLD'S STANDARD QUALITY NUMBERS.

British (Bradford)	U.S. Domestic	U.S. Territory	U.S. Pulled	Canadian	South American	Counts Spun to (Worsted)
70's/80's	—	—	—	—	Merino	70's upwards
70's	—	—	—	—	,,	64's
64's/70's	Full Blood (XX)	Fine Delaine	AA	—	,,	60's
64's	¾ Blood (X)	Fine Medium	AA	—	,,	56's
60's	½ Blood	½ Blood	A Fine	Fine	Prima	48's
56's	⅜ Blood	⅜ Blood	B	Fine Medium	1	46's
50's	¼ Blood	¼ Blood	B Medium	Medium	2	36's
46's/48's	Low ¼ Blood	Low ¼ Blood	C Low Medium	Low Medium	3	32's
44's	Common	Common	C Coarse	Coarse	4	30's
40's	,,	,,	C Lustre	Lustre	5	16's
36's	Braid	Braid	C Lustre	Lustre	6	16's
28's/32's	—	,,	—	—	—	12's

4. BRITISH PEDIGREE FLEECES.

The wonderfully complete exhibition of fleeces (skins) representative of British pedigree sheep which the Council of the Royal Agricultural Society in collaboration with the University of Leeds has been able to collect is well illustrated in Fig. 8, which

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[1] See *Nature*, Feb. 14, 1925.

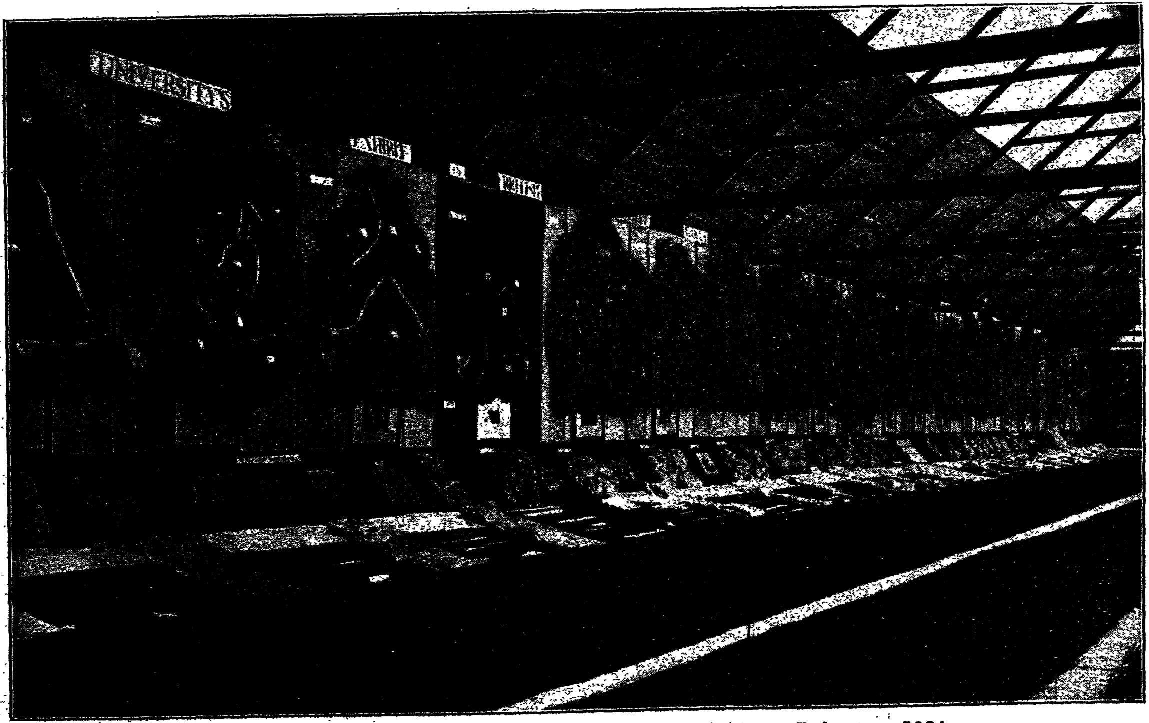

FIG. 8.—Leeds University's exhibit at the Royal Show, Leicester, 1924.

shows these fleeces as displayed at the Royal Show held at Leicester in 1924.

More details of these fleeces are given in Figs. 9, *a* to *d*, these giving rise to the following comments—

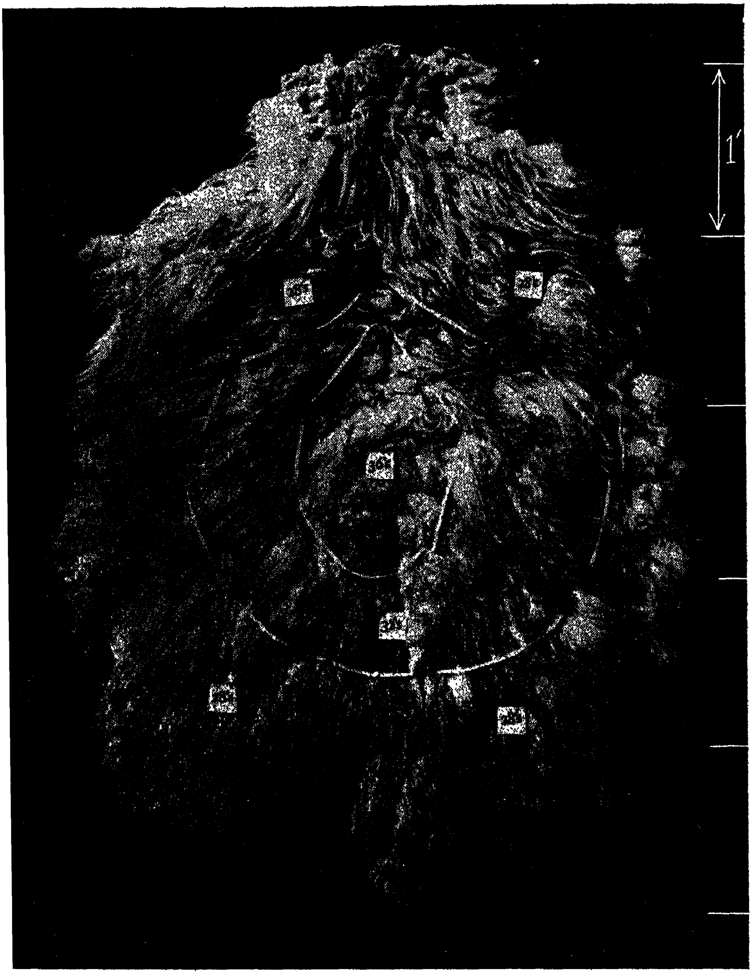

Fig. 9*a*.—Swaledale Fleece.

The quality numbers are given on the fleeces, and from the notes given on the illustrations should be readily recognised.

It will be noted that these qualities run from 28's, the lowest quality in the Swaledale, to 56's, the highest quality in the Dorset Down. In some Southdown fleeces a 58's quality would be in evidence.

Perhaps the most remarkable point raised is the uniformity

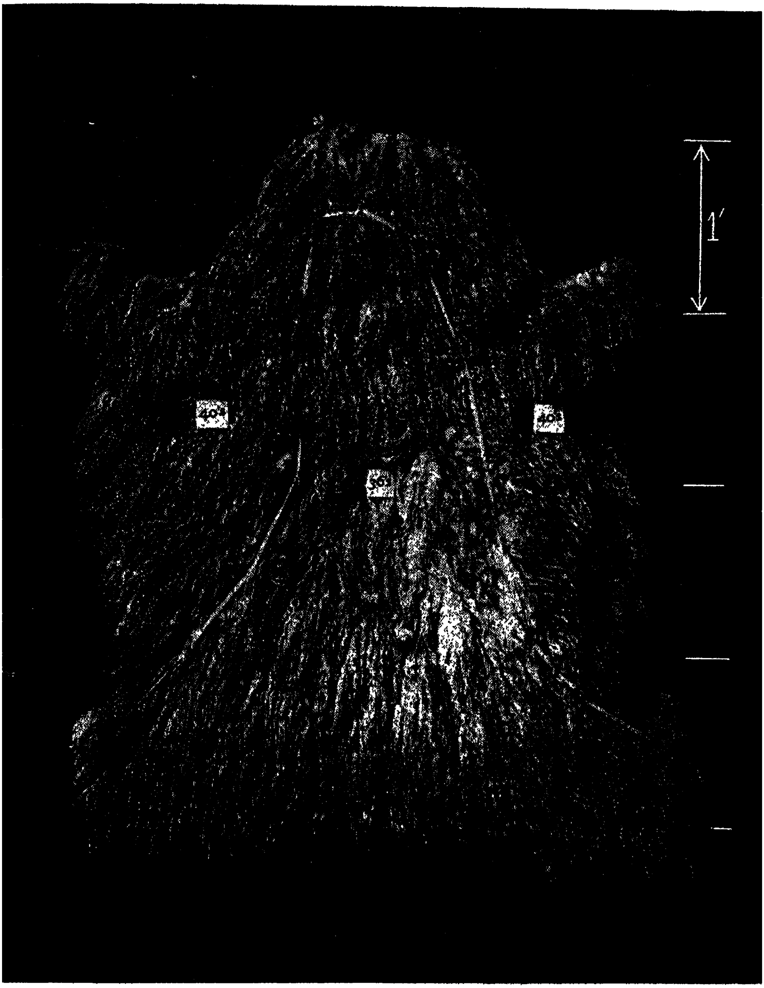

Fig. 9*b*.—Dartmoor Fleece.

of fibre in the fleeces nearest to the outer-hair type (Dartmoor), and the under-wool type (Dorset Down).

These fleeces have been selected particularly to show the distribution of the wool qualities. The circular distribution in the Swaledale, the straight-down distribution in the Dartmoor, the varied but extraordinarily uniform distribution in the

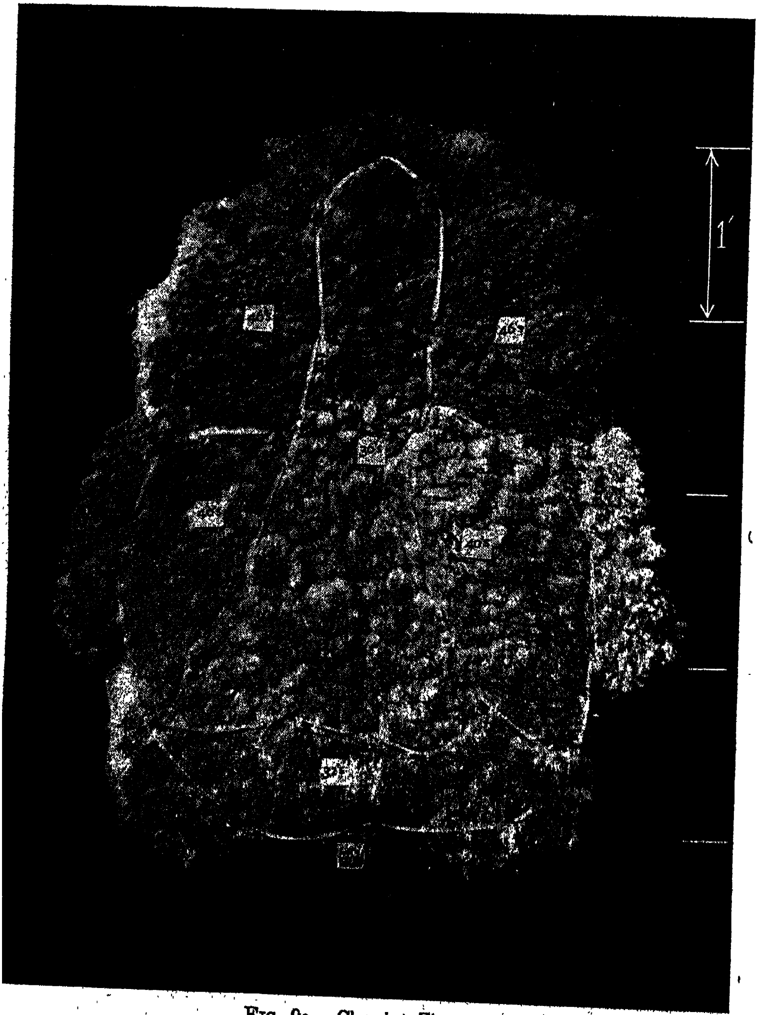

Fig. 9c.—Cheviot Fleece.

Cheviot, and the transverse distribution in the case of the Dorset Down, are both interesting and suggestive.

Each fleece of the twenty-seven exhibited shewed some special feature, and it is pleasing to be able to report that the whole series are to be conveniently housed for reference in the Museum of the Textile Industries Department of the University of Leeds, through the munificence of the Worshipful Company

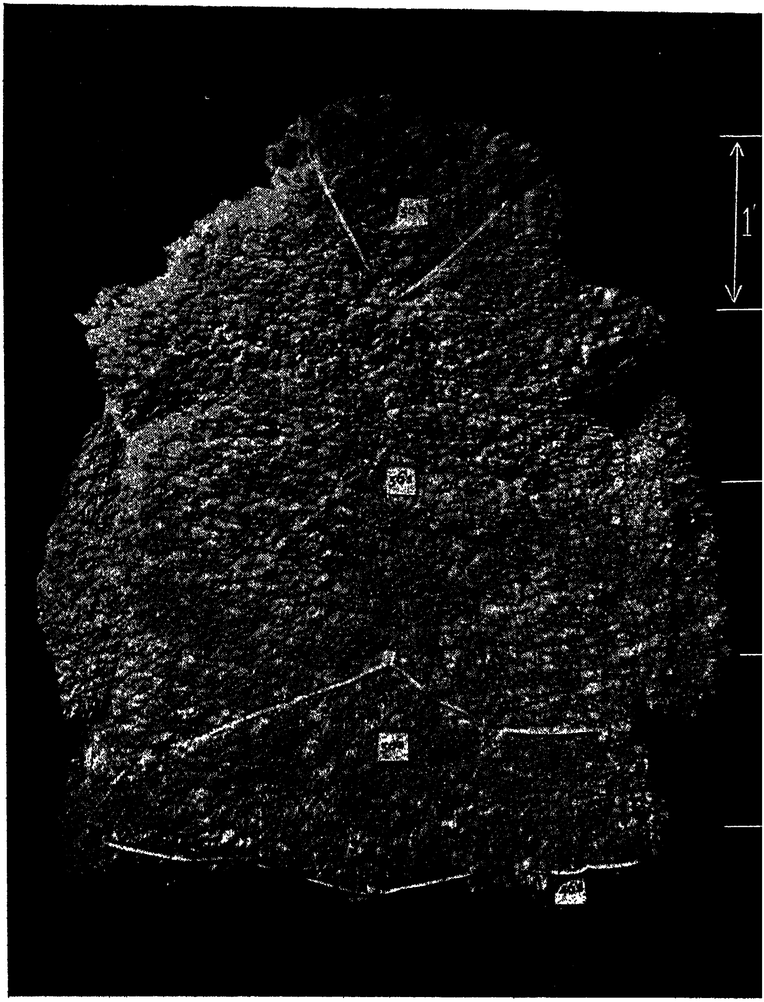

Fig. 9*d*.—Dorset Down Fleece.

of Clothworkers of the City of London, who are wishful to make a grant to the University for this purpose.

5. BRITISH PEDIGREE WOOL TOPS.

In the worsted as distinct from the woollen industry it is customary to deal with wools in a semi-manufactured state, that is as "top." A "top" is produced by first breaking up the natural fibre arrangement in the fleece and in the "lock" or "staple," thus producing a perfect "blend," or mixture, as it is termed, and then combing out the short and broken fibres, leaving as the "top" the fibres from, say, two inches and upwards in length, perfectly straight. In List VI. the proportions of "top" to "noil" (short fibre) yielded by the operation of combing the British Pedigree Wools are given. The particular commercial form a "top" takes is that of a sliver, of which 10 yards weighs from 4 to 8 ounces. This sliver—

LIST VI.—BRITISH PEDIGREE WOOLS.

Breed	Proportion. Top to Noil
Mountain Wools:	
Blackface	6 to 1
Herdwick	4 to 1
Welsh (White)	9 to 1
Lonk	9·3 to 1
Swaledale Dales	4·3 to 1
Welsh (Black)	5·6 to 1
Lustre Wools:	
Lincoln	19·5 to 1
Devon Longwool	10 to 1
South Devon	12·3 to 1
Leicester	—
Dartmoor	12·5 to 1
Cotswold	10 to 1
Wensleydale	—
Border Leicester	—
Demi-Lustre Wools:	
Cheviot	11 to 1
Exmoor Horn	17·7 to 1
Romney Marsh or Kent	10·5 to 1
Leicester, Half-bred	16·8 to 1
Kerry Hill	11·6 to 1
Down Wools:	
Dorset Down	14·3 to 1
Dorset Horn	18·5 to 1
Oxford Down	15·5 to 1
Suffolk Down	11·2 to 1
Hampshire	13·3 to 1
Ryeland	—
Shropshire	12·5 to 1
Southdown	7·5 to 1

many yards in length—is usually placed on the market in "ball" form: that is, the sliver, approximately as thick as one's wrist, is wound up in ball form, such balls being approximately 16in. × 8in. of solid wool fibre. Tops are classed under the quality numbers already referred to. It should be noted, however, that naturally following the sorting of any fleece, a given type of

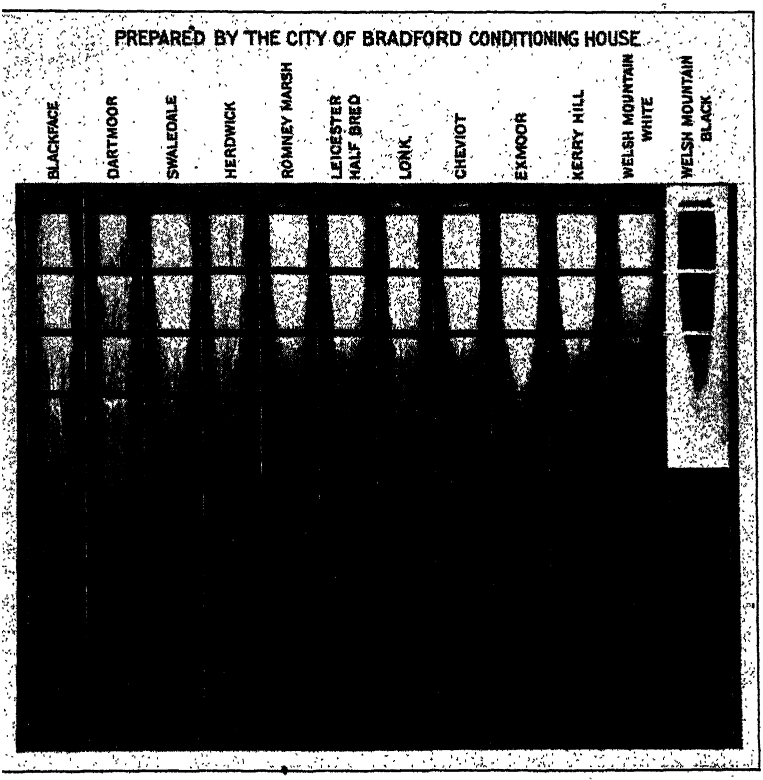

FIG. 10.—Drawings of Pedigree Wool Tops (1st Series).

wool—a Romney Marsh, for example—may be sorted into four or more qualities of tops. Or, to put it in another way, a 32's top quality may be made from Herdwick, Blackface, Swaledale, Lonk, Lincoln, Leicester, or Cotswold, etc., wools; and although all these tops would be all 32's quality, many of them would exhibit characteristic differences, although the fibre diameter would be approximately the same for the whole series. In Figs. 10 and 11, what are termed "drawings" from the complete range of British pedigree wools are illustrated. The difference in fibre diameter will already have been gauged, but the difference in length will come somewhat as a revelation to the uninitiated. On examining any one of these drawings it will further be noticed that each is not made up of the same length of fibre—which would be ideal—but is composed of fibres varying from long to comparatively short. Now by hand, or better still by means of the Schlumberger Top Analysing Machine, the percentages of the various fibre lengths can be got out and graphed as a curve on a definite basis which allows an exact comparison for length to be made between two or more tops. The analysis of representative long and short tops are given in Figs. 12 and 13.[1] Such analyses (which may be

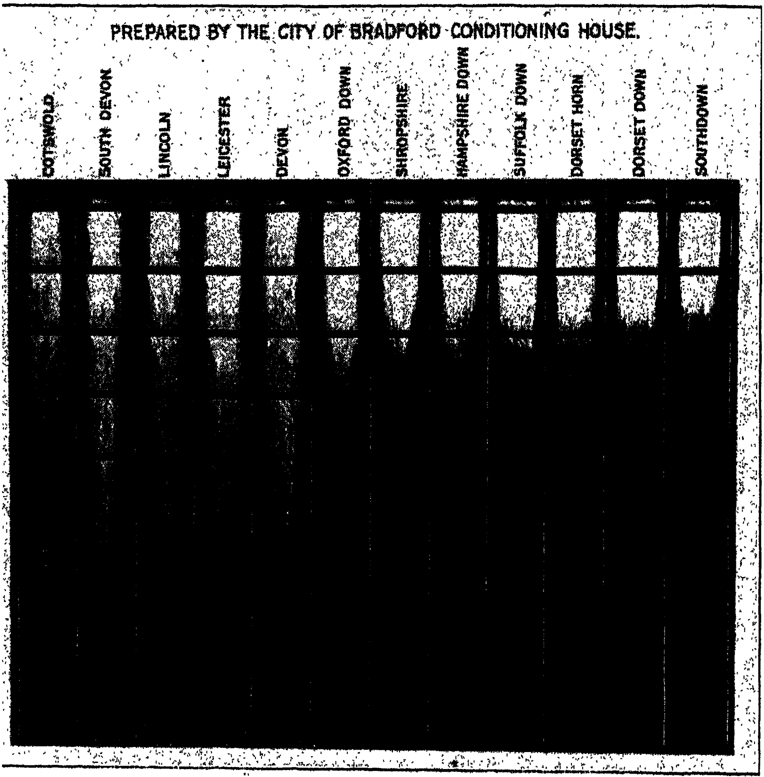

FIG. 11.—Drawings of Pedigree Wool Tops (2nd Series).

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[1] Kindly prepared for the Leeds University by Mr. E. H. Townend, Manager of the Bradford Corporation Conditioning House.

graphed on mathematical lines) enable the yarn constructor to spin the fibre into yarn under the best possible conditions, and

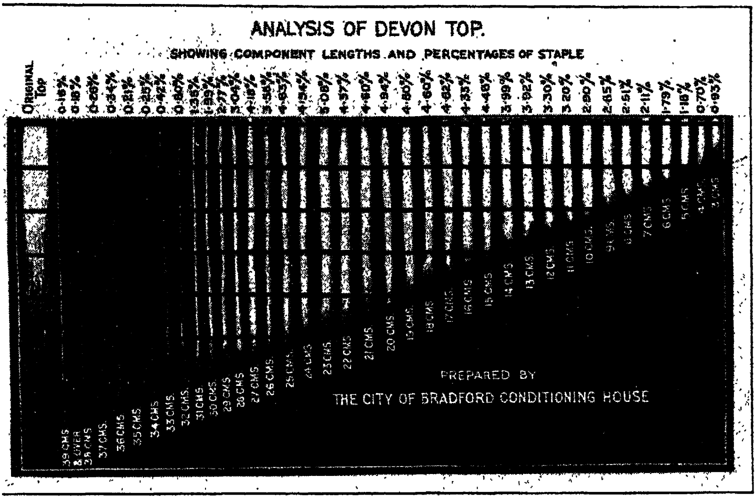


FIG. 12.—Analysis of Devon (Lustre) Top.

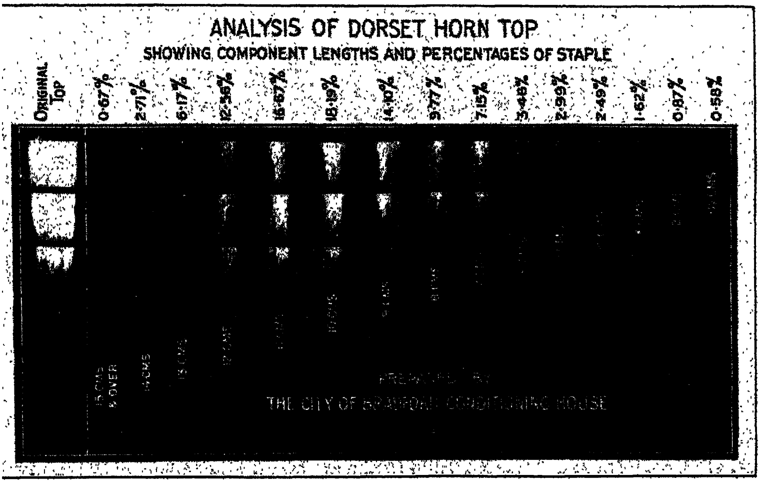
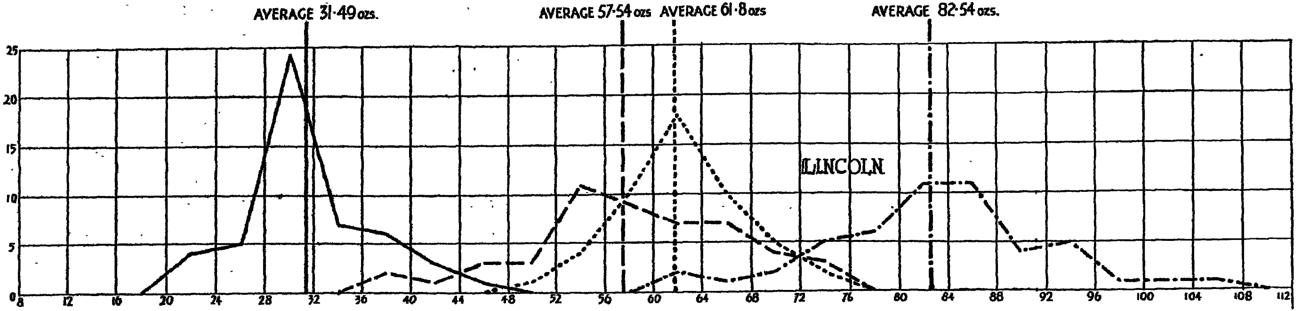


FIG. 13.—Analysis of Dorset Horn Top.

further give some idea of the ultimate strengths of yarns and cloths produced from the respective tops.

FIG. 14b.



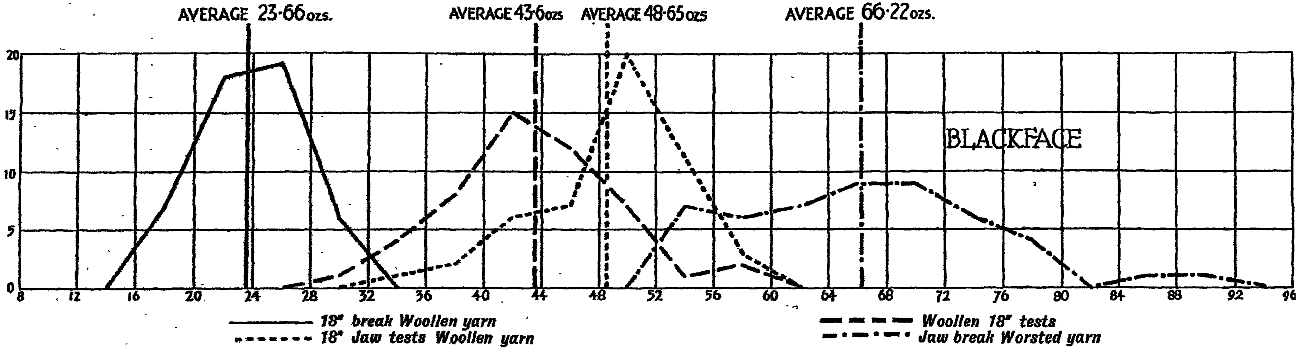


FIG. 14a.

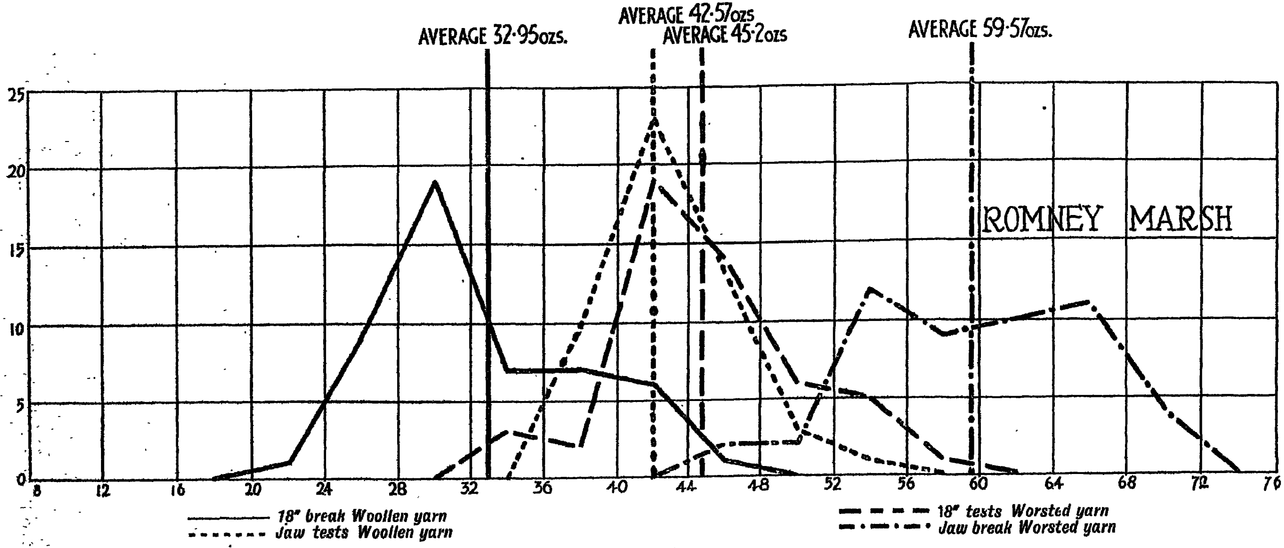

AVERAGE 32·95ozs.
AVERAGE 42·57ozs
AVERAGE 45·2ozs
AVERAGE 59·57ozs.
ROMNEY MARSH
25
20
15
10
5
0
8
12
16
20
24
28
32
36
40
44
48
52
56
60
64
68
72
76
18" break Woollen yarn
Jaw tests Woollen yarn
18" tests Worsted yarn
Jaw break Worsted yarn

Fig. 14c.

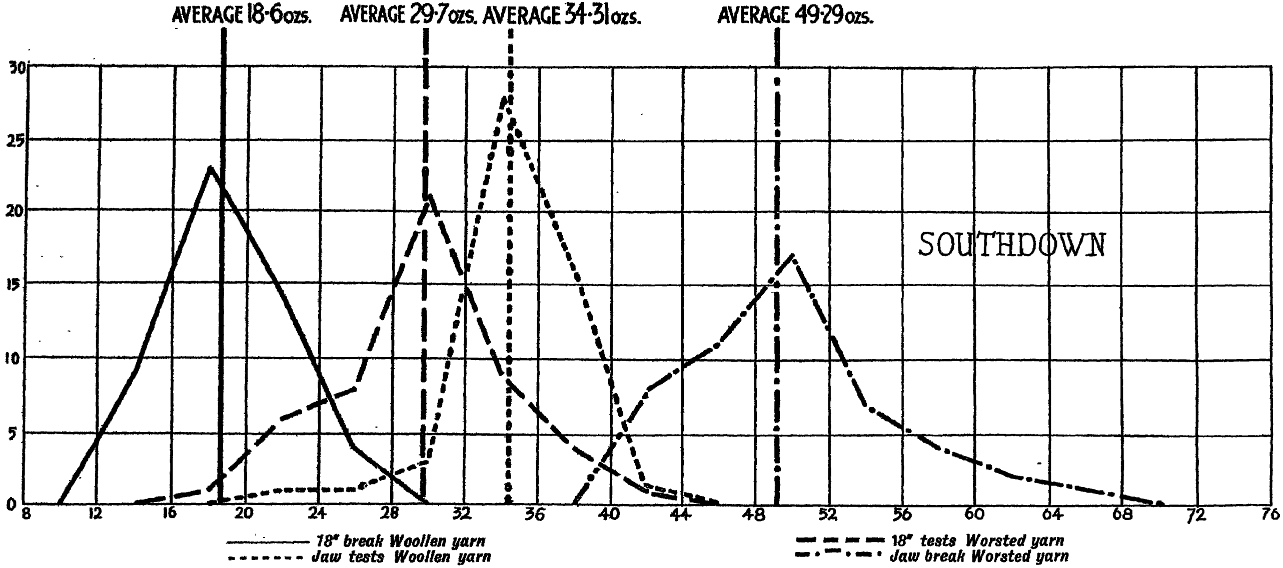

AVERAGE 18·6ozs.
AVERAGE 29·7ozs.
AVERAGE 34·31ozs.
AVERAGE 49·29ozs.
SOUTHDOWN
30
25
20
15
10
5
0
8
12
16
20
24
28
32
36
40
44
48
52
56
60
64
68
72
76
18" break Woollen yarn
Jaw tests Woollen yarn
18" tests Worsted yarn
Jaw break Worsted yarn

FIG. 14*d*.

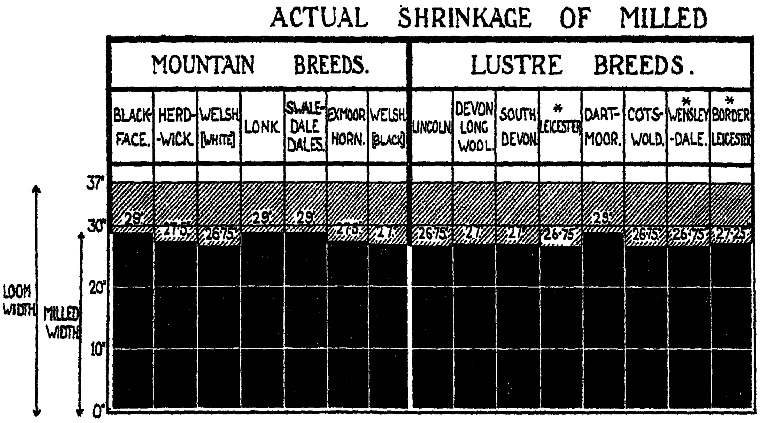
6. BRITISH PEDIGREE YARNS.

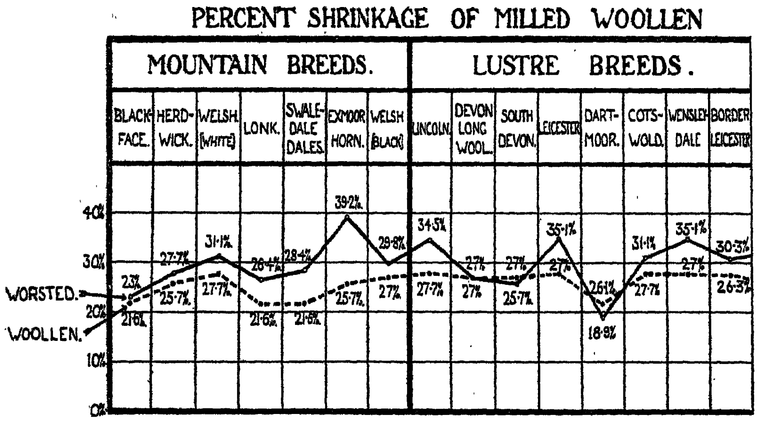
From the various qualities of tops illustrated, corresponding types of yarns may be produced. The yarn spinner wishes to know two things—first, whether the fibre of which any yarn is spun is sound; second, whether these fibres are bound together (spun) in a manner which will give the utmost strength to the resultant yarn. These two points are ascertained by testing the yarn in a machine which practically consists of two jaws, (between which the yarn can be lightly tensioned and held), one of which is fixed, and the other of which may be gradually loaded until the yarn breaks, when both strength and elongation may be recorded. To test for the "fibre break" the two jaws are brought close together for the test, and a series of threads—say twenty-five—broken. Then the same yarn (necessarily individual lengths) is tested at well over the fibre length—say a series of twenty-five eighteen-inch lengths. The "fibre break" enables the spinner to judge of the soundness of the fibres of which the yarn is composed, while $\frac{\text{18-inch break}}{\text{fibre break}}$: i.e., the 18-inch thread break in terms of the fibre break (usually from 0·5 to 0·75) gives what may well be termed the "spinning efficiency." In Figs. 14*a* to *d* the records for yarns from four typical British Pedigree wools are given. Many points of profound interest to the spinner may be read from these graphed results.

7. BRITISH PEDIGREE CLOTH AND HOSIERY FABRICS.

Just as each type of top gives a corresponding type of yarn, so does each type of yarn give a corresponding type of cloth. A further difficulty comes in here, however; for any wool may be made into a woollen yarn (carded and mule-spun yarn, and the corresponding cloth), or a worsted yarn (gilled or carded, combed, drawn, and frame spun, and the corresponding cloth). The wools under consideration have each been made into (*a*) typical woollen, and (*b*) typical worsted cloths under identical conditions. Now, although strength is an important factor in cloths, a more important one is what is termed the felting or milling capacity. This is something more than shrinkage—it is a further contraction of the cloth upon itself. The theory of "felting" cannot be gone into here, but some extraordinary results are given in Fig. 15 which represents graphically the results of "felting" yard lengths of each of the woollen and worsted cloths from each of the pedigree wools under identical conditions; and in the lower part is given the percentage shrinkage. To the cloth manufacturer these results come as an astonishing revelation, for they show—

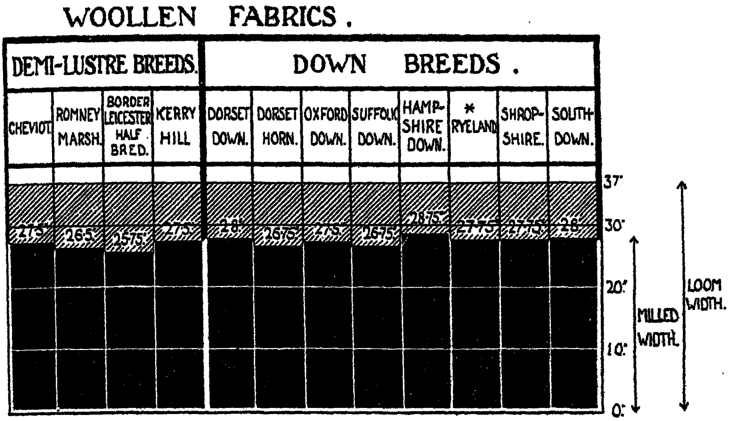
1. That worsted cloths tend to felt more than woollen cloths.

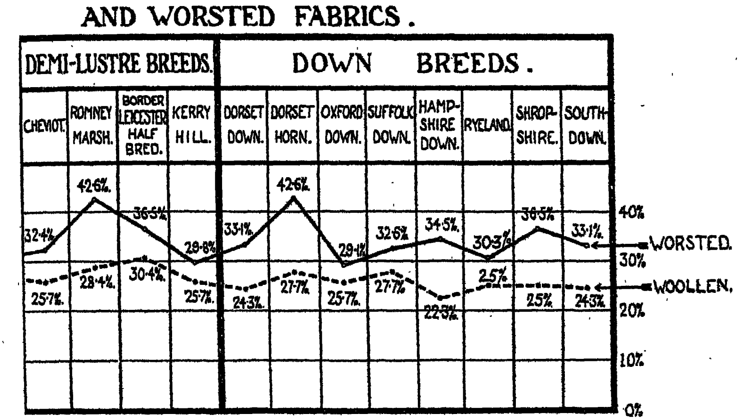




* Estimated from

Fig. 15.—Shrinkage or





actual results obtained later.

Felting of Pedigree Wool Cloths.

2. That the three possible exceptions to this rule are wools grown in Devonshire or thereabouts.

3. That Down wools, which were supposed to be non-felting wools, supply one of the wool which felts the best.

4. That the "fibre-stuff," or the "fibre-scaffolding" of the respective wool fibres vary: for the difference between the woollen and worsted cloths contractions may be taken to measure the elasticity of the respective fibres—those fibres which have allowed themselves to be pulled out most in the drawing and spinning contracting (felting) the most in the subsequent finishing processes. Thus the three wools, Exmoor Horn, Romney Marsh, and Dorset Horn, as worsteds, are remarkable for their felting properties, and in this case this property is in some sense a measure of their previous elongation during drawing and spinning.

The quality of "elasticity," as shown by elongation, is naturally a very important one in dealing with hosiery yarns and fabrics. Sometimes a shrinking and felting yarn is required; sometimes it is very desirable that a non-felting yarn should be employed. Thus the foregoing particulars are of the utmost importance to the hosiery manufacturer, and similar particulars worked out for Colonial wools should be a Godsend.

8. SPECIAL USES OF BRITISH PEDIGREE WOOLS.

Many of the Pedigree wools possess characteristics of remarkable value. Not a pound of Herdwick, Cheviot, Romney, Wensleydale, Southdown, etc., wools should be allowed to go out of the country. And if fashion changes, as it may well do, there will be all too little of these wools for the home manufactures. As the values of these wools for the production of certain typical fibres become better known, it may well be anticipated that the demand will be so great that they should still markedly increase in value. Very few wools will give the Wensleydale waved effect, few wools can provide the Herdwick handle and colours, few wools the crisp Cheviot or characteristic Southdown effect; and if only the British manufacturer will make the most of these possibilities there will be a marked development in the demand for fabrics from British wools, to the mutual advantage of both grower and manufacturer. Wool values will undoubtedly fluctuate in the near future, but the world's demand for wool fabrics is such that it is more likely that there will be a further permanent rise rather than a serious decline in these particular values. Wool is wanted, and all possible wool-growing tracts should be utilised to the full—in this and in other countries.

In Fig. 16 staples from the parent sheep are shown.

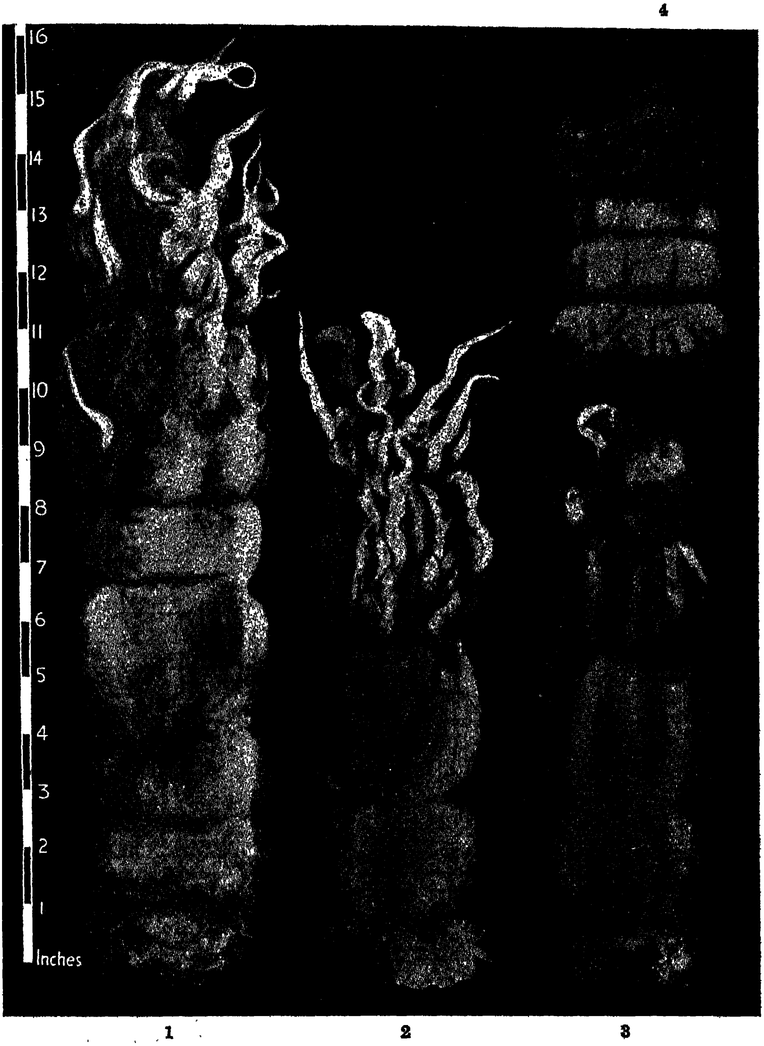


FIG. 16.—Cross-breeding Experiments for Wool and Mutton.

Qualities of wool from Sires and Dams expressed in "counts."

1. 36's. Lincoln Ram (L1).
2. 40's. English Leicester Ram (L2).
3. 44's. Border Leicester Ram (L3).
4. 60's. Merino Ewe (M).

In Fig. 17, the "live weights" of the respective crosses are given.

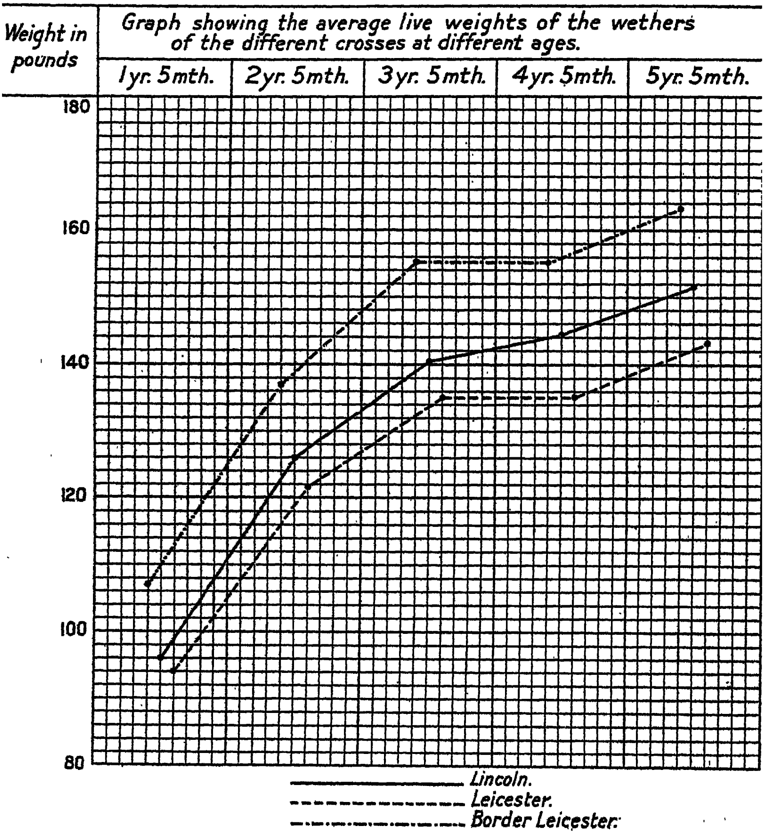


Fig. 17.

9. Sheep for Crossing Purposes.

Some remarkably interesting experiments have been carried out by the Department of Agriculture of the New South Wales State Government on the relative value of Lincoln, Leicester, and Border-Leicester crosses with Merinos from both the mutton and the wool point of view.

In Fig. 18 the average "wool weights" of the wethers of the respective crosses are given.

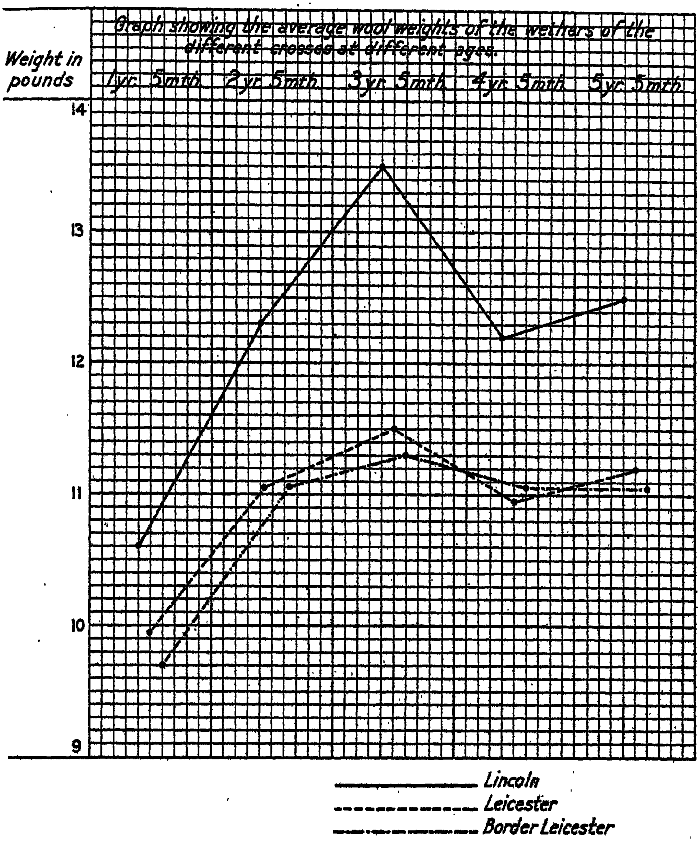


FIG. 18.

In Fig. 19 the average "wool weights" of ewes at different ages are given.

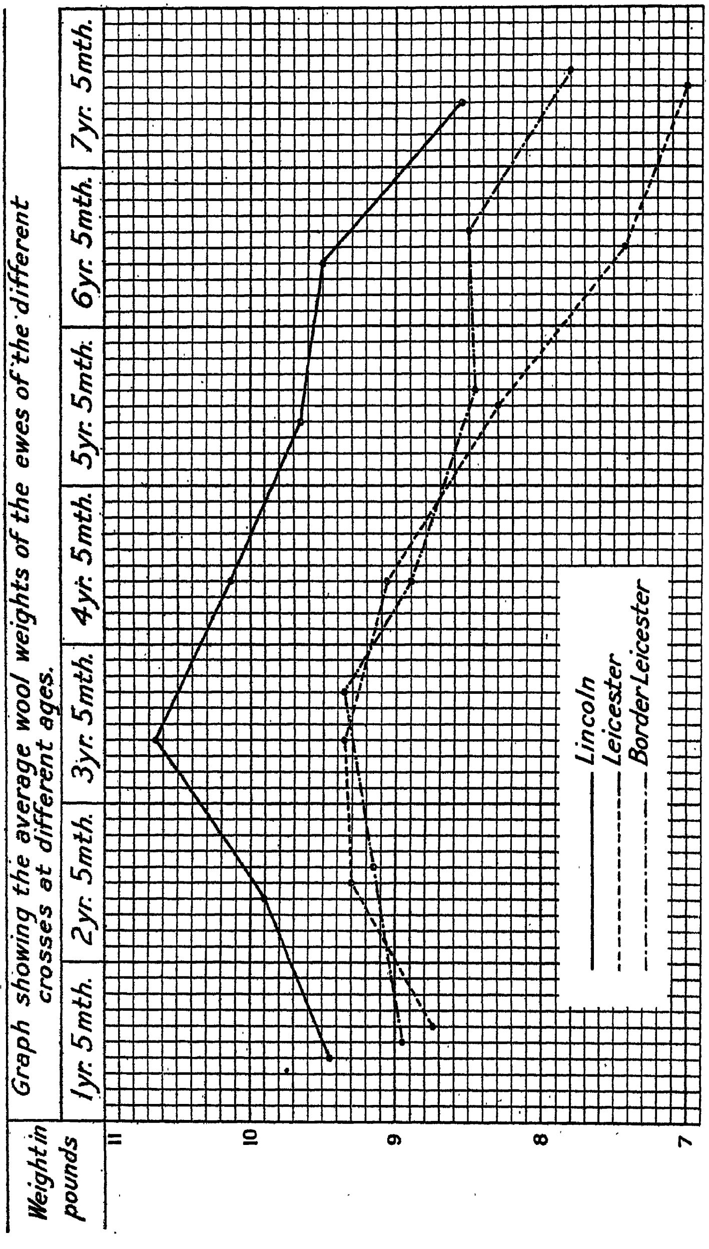

Graph showing the average wool weights of the ewes of the different crosses at different ages.
Weight in pounds
11
10
9
8
7
1yr. 5mth.
2yr. 5mth.
3yr. 5mth.
4yr. 5mth.
5yr. 5mth.
6yr. 5mth.
7yr. 5mth.
Lincoln
Leicester
Border Leicester

FIG. 19.

In List VII the average percentages of the various qualities of wools for the respective crosses are given.

LIST VII.—PERCENTAGES OF EWES' FLEECES OF VARIOUS COUNTS AT THREE FARMS COMBINED.

Count	Lincoln-Merino		Leicester-Merino		Border Leicester-Merino	
	Ewes		Ewes		Ewes	
	No. of Fleeces	Percentage	No. of Fleeces	Percentage	No. of Fleeces	Percentage
58's	4	·34	312	23·53	289	21·74
56's	183	15·86	432	32·57	414	31·15
54's	176	14·96	261	19·67	269	20·24
50's	359	30·52	290	21·87	294	22·12
46's	377	32·05	31	2·33	62	4·66
44's	74	6·29	—	—	1	·07
40's	3	·25	—	—	—	—

In List VIII, the "average percentages of the clean yield" of these various qualities of wool of the respective crosses are given.

LIST VIII—AVERAGE PERCENTAGE OF CLEAN YIELD RETURN FROM WOOL OF DIFFERENT GRADES AT BATHURST, WAGGA AND COWRA EXPERIMENT FARMS.

Count	Lincoln-Merino				Leicester-Merino				Border Leicester-Merino			
	Wethers		Ewes		Wethers		Ewes		Wethers		Ewes	
	No.	Yield	No.	Yield	No.	Yield	No.	Yield	No.	Yield	No.	Yield
		per cent.		per cent.		per cent.		per cent.		per cent.		per cent.
58's	—	—	4	53·27	21	54·23	312	55·97	70	61·0	289	59·76
56's	32	57·57	183	58·83	114	57·36	432	58·86	120	62·05	414	61·65
54's	43	61·0	176	62·14	50	60·35	261	60·48	42	63·21	269	62·93
50's	100	64·18	359	62·93	111	62·72	290	62·56	82	64·81	294	64·39
46's	142	66·66	377	65·46	17	65·15	31	65·53	9	64·71	62	66·54
44's	20	70·84	74	68·0	—	—	—	—	—	—	—	—
40's	—	—	3	72·3	—	—	—	—	—	—	—	—

In List IX, the "average value per pound" of the various grades of the respective crosses are given.

LIST IX.—AVERAGE VALUE PER POUND OF DIFFERENT GRADES OF WOOL, BASED ON CLEAN SCOURED RETURNS.

Count	Lincoln-Merino				Leicester-Merino				Border Leicester-Merino			
	Wethers		Ewes		Wethers		Ewes		Wethers		Ewes	
	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value
		d.		*d.*		*d.*		*d.*		*d.*		*d.*
58's	—	—	4	15·	21	14·42	312	15·61	70	18·53	289	17.55
56's	32	13·89	183	14·55	114	14·31	432	14·63	120	15·16	414	15·32
54's	43	16·17	176	15·89	50	14·65	261	15·46	42	16·12	269	15·93
50's	100	14·72	359	14·51	111	14·74	290	13·71	82	13·95	294	13·32
46's	142	12·81	377	12·57	17	10·02	31	11·21	9	11·22	62	11·37
44's	20	13·22	74	12·18	—	—	—	—	—	—	1	15·
40's	—	—	3	15·35	—	—	—	—	—	—	—	—

In List X a "summary of the wool values" is given.

LIST X.—THE RELATIVE VALUES OF THE THREE WOOLS (PRE-WAR).

Cross	Wethers		Ewes	
	No.	Value	No.	Value
		d.		*d.*
L_1M (Lincoln cross) . .	337	13·94	1,176	13·93
L_2M (Leicester cross) . .	313	14·28	1,326	14·71
L_3M (Border-L'cester cross)	323	15·61	1,329	15·30

These figures are well worth careful studying on the part of the British sheep-breeder, who is breeding for the Ram Export Trade. It would seem to be very desirable for our own Board of Agriculture to initiate similar series of experiments in this country in view of the importance of the Ram Export Trade to British sheep-breeders.

One further matter only in conclusion. Recently the value of the Romney Marsh sheep for crossing purposes in New Zealand has been brought into question by Mr. F. A. Aykroyd, of Bradford. When Professor Cossar Ewart returned from New Zealand, in the early months of 1924, he reported to the writer of this article his surprise at the coarseness of the New Zealand Romney Marsh wools. By some mischance his views were entirely misrepresented, and he was supposed to have given expression to views very favourable to the New Zealand Romney sheep, and at variance with the opinion held in Bradford. Fortunately the writer of this paper was able to obtain samples from both Mr. F. A. Aykroyd and Professor Cossar Ewart; and also having some particulars of Australian Romney Marsh wools, and the pedigree Romney Marsh wools provided by the Royal Agricultural Society before this controversy arose, it has been possible to analyse carefully all these samples, and from these analyses, perhaps, more completely to appreciate the position than has previously been possible. It should further be added that as the Wensleydale sheep was suggested as a more suitable sheep than the Romney for New Zealand, analyses of the Wensleydale wools are also given. The value of the Wensleydale sheep, however, is brought into question by its tendency, already referred to, to throw blacks, and it may safely be said that unless the wonderfully interesting research into the Wensleydale constitution at present being undertaken by Mr. Dry, at Leeds University, should show the possibility of developing a Wensleydale white breed, this suggestion must be ruled out of court. It may interest sheep-breeders to know that the University of Leeds already owns one or two Wensleydale Rams which have never got black lambs, and Mr. Dry is of the opinion that there are similar ewes. Offers to purchase these from West Africa for breeding purposes have already been refused. For further particulars on this interesting matter breeders are referred to Mr. Dry's papers already published, or about to be published in "The Journal of Genetics." In Fig. 20 the micro-measurements in frequency curve form of fibres of the Pedigree Romney Marsh and Wensleydale wools are given. The Wensleydale shows a "tail" of strong fibres which are not represented in the Romney Marsh. It should be noted that these results in each case are representative of the whole fleece, so that both curves are on a much longer basis than would be the case with sorted qualities of each type of wool.

In Fig. 21 the coarser New Zealand Romney Marsh fibre is compared with the British Pedigree fibre. The fact that the New Zealand curve is based upon fibres from locks taken from the shoulder of the sheep in New Zealand, whereas the British Pedigree curve is based upon representative fibres, suggests that Professor Cossar Ewart's criticism of the New Zealand Romney Marsh wools as being "coarse" is quite justified.

In Fig. 22 a series of normal Wensleydale fibres—measured for variation at both "tip" and "root"—is contrasted with a similar series of fibres taken from a degenerate Romney Marsh fleece submitted by Mr. F. A. Aykroyd. Here the difference is extraordinary, and is the justification for the strong criticism which Mr. Aykroyd has passed on Romney Marsh crosses.

In Fig. 23 two series of Romney Marsh staples—one waved, the other nearly straight—are shown. The uniformity in length

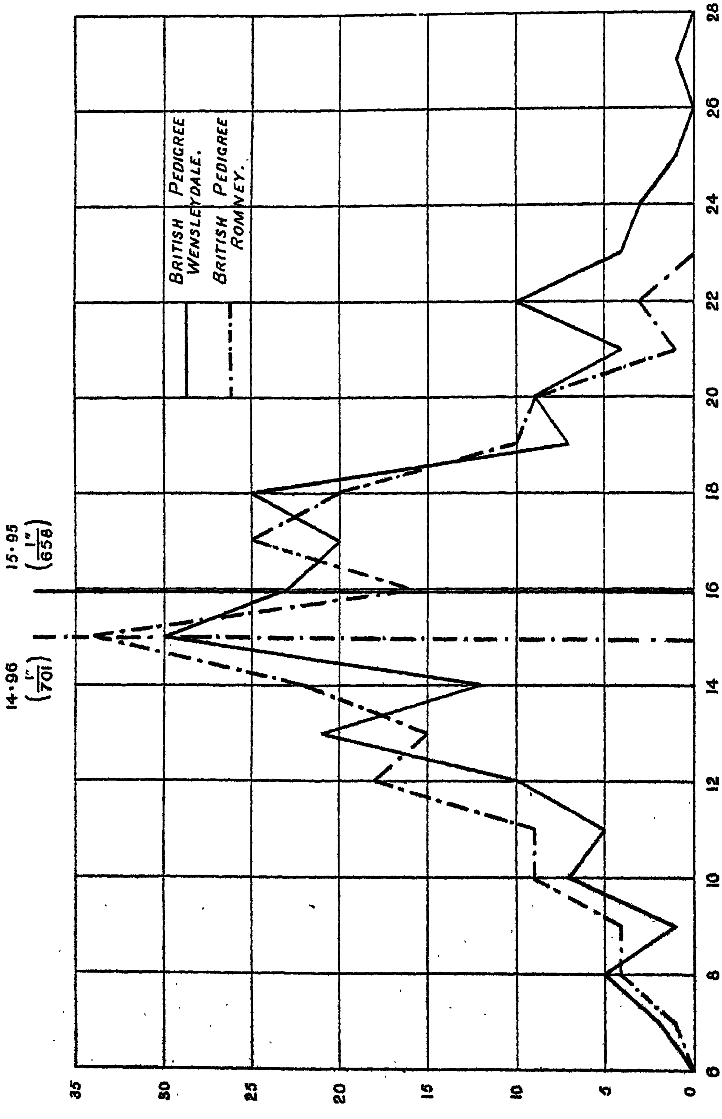


FIG. 20.—Romney Marsh and Wensleydale Pedigree Wools compared.

of staple and the comparatively little "bottom wool" are here well illustrated.

In Fig. 24 a British Pedigree Romney Marsh skin is shown, in this case the "britch" quantity is down to 32's, but there is

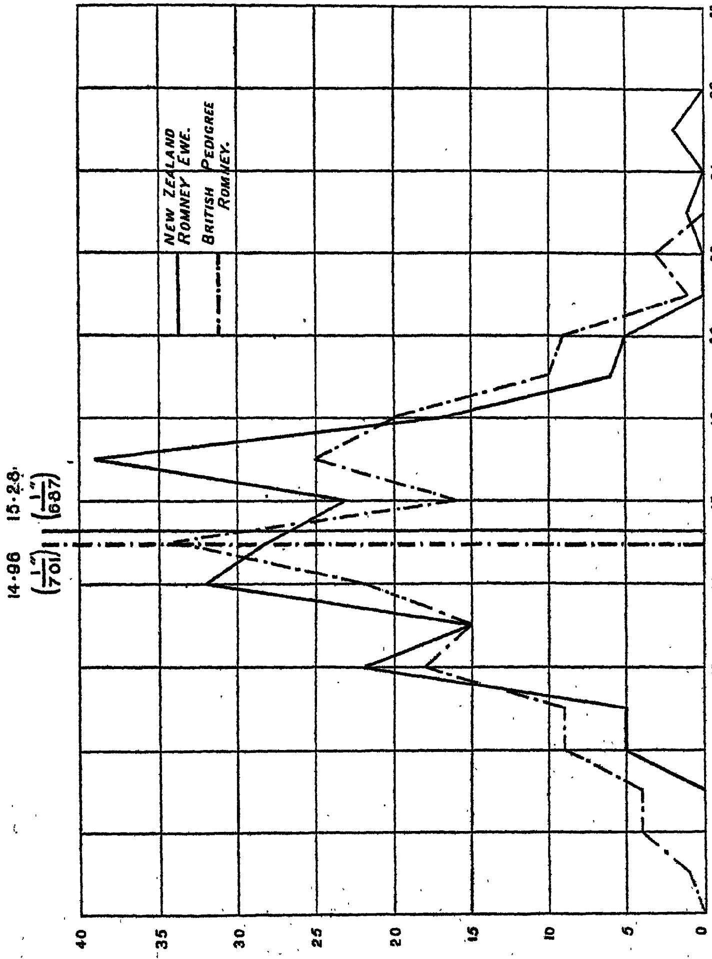


Fig. 21.—New Zealand and British Pedigree Romney Marsh Wools contrasted.

very little of it. The less there is of the 36's quality, the better. The bulk quantities should be 40's and 46's. Upon the whole a fleece of this type cannot well be improved upon for crossing purposes if the lofty type of wool specially meeting the requirements of the hosiery manufacturers is desired. It is

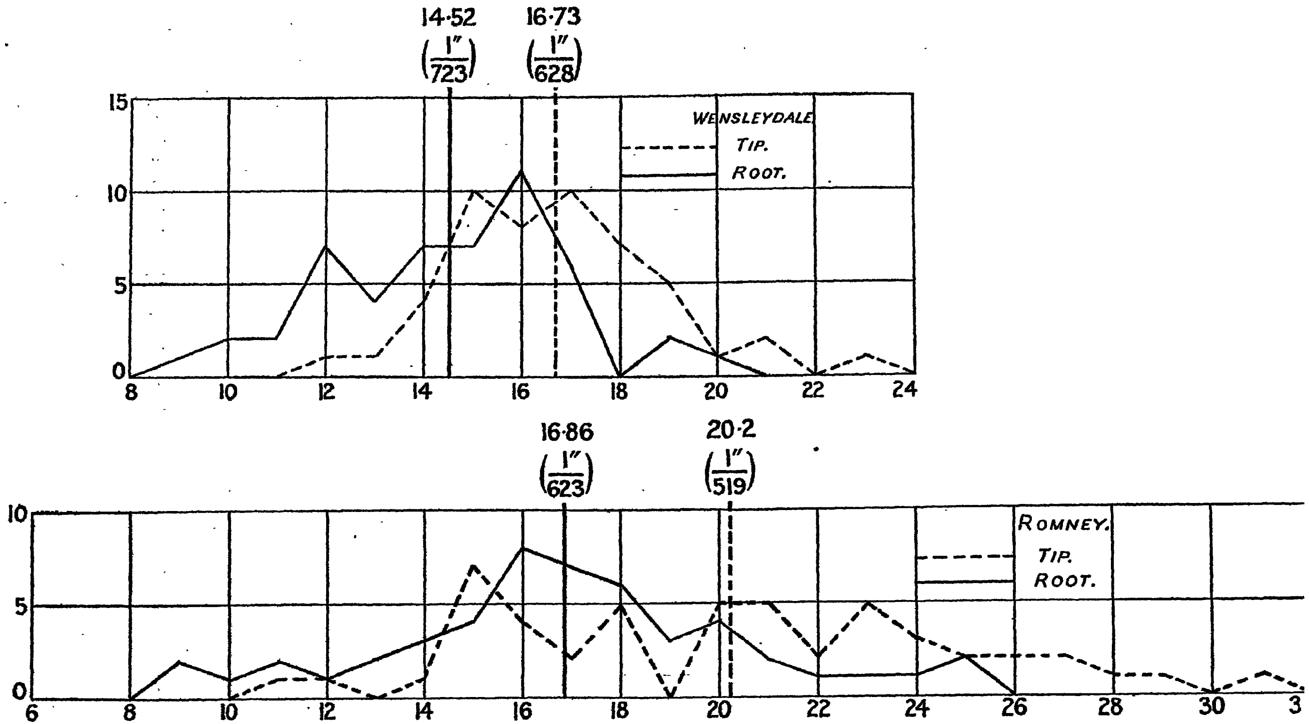


FIG. 22.—Pedigree Wensleydale contrasted with New Zealand Romney Marsh Cross.

interesting to note that New Zealand Romney Marsh fleeces

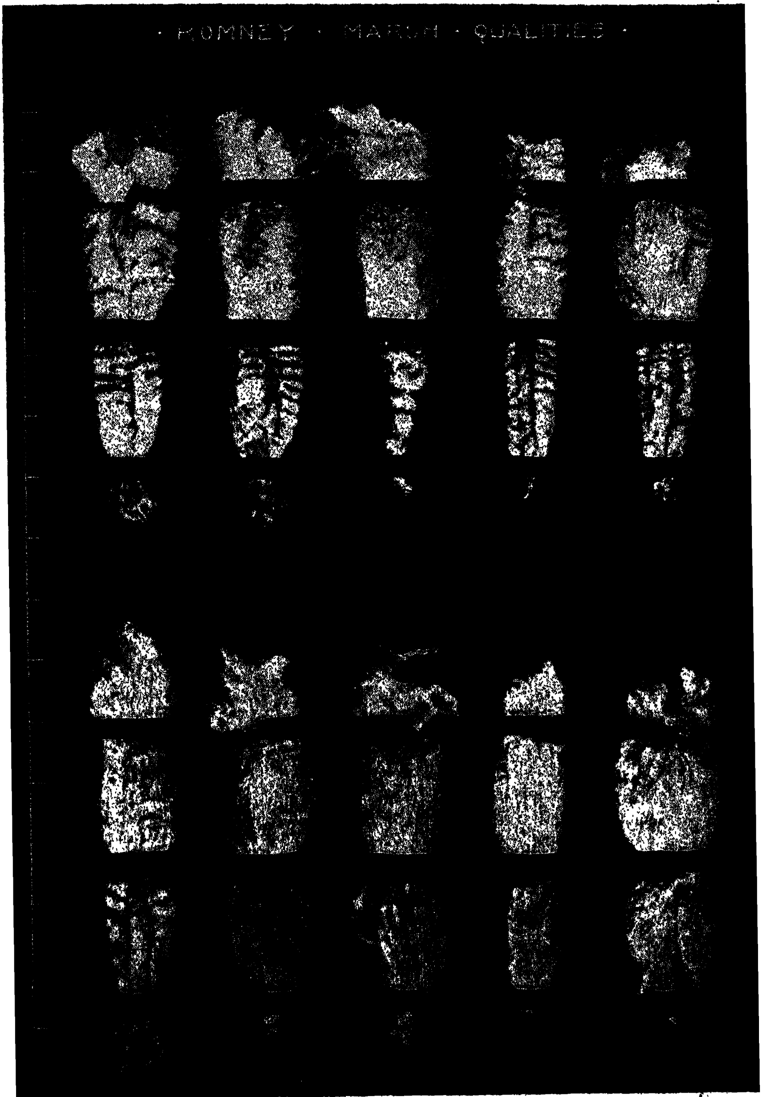


FIG. 23.—Variations in the same fleece of a pedigree Romney Marsh.

grown in the Otago district are classed up to 50's, while those grown in Wellington are mostly 44's, with some 46's. The Gisborne district comes in between with a 48's as its highest classing. It is just conceivable that the Romney Marsh sheep may respond differently to different environments. If this is so, all the more need to carefully select the finest coated sheep only for breeding purposes.

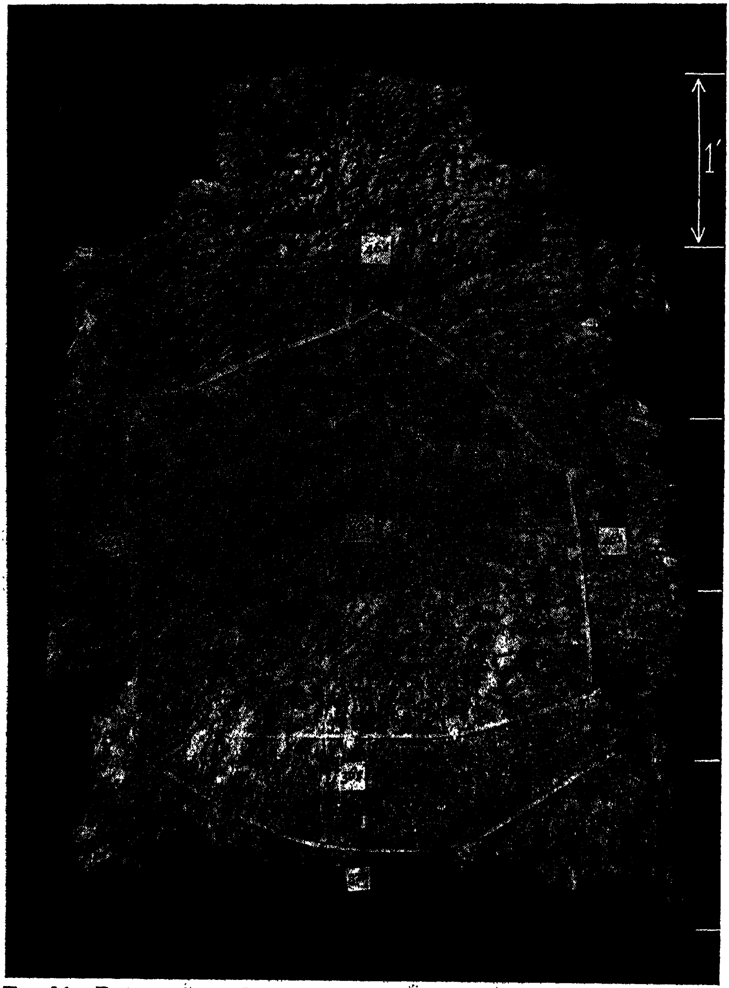


Fig. 24.—Romney fleece showing qualities of wood ranging from 32's to 46's.

The following particulars, kindly provided by the authorities controlling the Melbourne Spring (September) Show, may very usefully be considered by British sheep-breeders. The value of the Romney Marsh fleeces—no doubt from well-selected or culled sheep—shows clearly that the faults complained of in Romney Marsh wool lie, not so much in the breed as in the neglect of care in selecting the rams and culling the ewes. It is hoped that the presentation of the problem here given will enable sheep-breeders in the Colonies to use the Romney Marsh breed of sheep in a satisfactory manner, and that by this means the strong position of this breed in the Overseas Dominions and elsewhere may be not unduly disturbed.

PARTICULARS OF TYPICAL FLEECES EXHIBITED AT THE MELBOURNE (VICTORIA) SHOW, 1923.

Description	Weight lb. oz.	Value per lb.		Exhibit, Prize, Judge's Remarks
		d.	£ *s.* *d.*	
Fleece . . .	23 11	7½	0 14 9½	Lincoln Ram Fleece, 1st Prize, 36's quality, good lustre and character, fair staple.
Pieces, Bellies .	3 4	4	0 1 1	
Std. Pieces and Locks . .	0 12	2½	0 0 2	
Total value of fleece			£0 16 0½	
Fleece . . .	19 4	6¾	0 10 10	Lincoln Ewe Fleece, 1st Prize, 36's quality, good style and lustre, and weight of staple.
Pieces, Bellies .	1 8	3½	0 0 5¼	
Std. Pieces and Locks . .	0 8	2	0 0 1	
Total value of fleece			£0 11 4½	
Fleece . . .	11 0	10	0 9 2	English Leicester Ram Fleece, 1st Prize, 46's, 44's quality, good length, style, fair bulk.
Pieces, Bellies .	2 15	7½	0 1 10	
Std. Pieces and Locks . .	0 3	3¼	0 0 0½	
Total value of fleece			£0 11 0½	
Fleece . . .	13 0	9	0 9 9	English Leicester Ewe Fleece, 1st Prize, 44's, quality, good length, style and bulk.
Pieces, Bellies .	2 1	5½	0 0 11¼	
Std. Pieces and Locks . .	0 5	3½	0 0 1	
Total value of fleece			£0 10 9¼	

Description	Weight		Value per lb.				Exhibit, Prize, Judge's Remarks
	lb.	oz.	*d.*	£	*s.*	*d.*	
Fleece . . .	10	12	9	0	8	0¾	Border Leicester Ram Fleece, 1st Prize, 46's quality, good length, bulk and style, burry.
Pieces, Bellies .	3	0	7	0	1	9	
Std. Pieces and Locks . . .	0	10	3¾	0	0	2½	
Total value of fleece				£0	10	0¼	
Fleece . . .	11	12	9	0	8	9¾	Border Leicester Ewe Fleece, 1st Prize, 44's quality, good length, bulk and style.
Pieces, Bellies .	1	11	7½	0	1	0⅝	
Std. Pieces and Locks . . .	0	11	3¾	0	0	2½	
Total value of fleece				£0	10	0⅞	
Fleece . . .	14	15	14	0	17	5	Romney Ram Fleece, 1st Prize, 46's quality, excellent length, style and colour.
Pieces, Bellies .	3	10	8	0	2	5	
Std. Pieces and Locks . . .	1	1	3	0	0	3¼	
Total value of fleece				£1	0	1¼	
Fleece . . .	16	4	12	0	16	3	Romney Ewe Fleece, 1st Prize, 46's, 50's quality, good length, style and bulk.
Pieces, Bellies .	3	13	7½	0	2	4½	
Std. Pieces and Locks . . .	1	3	3½	0	0	4½	
Total value of fleece				£0	19	0	
Fleece . . .	5	4	15	0	6	6¾	Down Ram Fleece (other than Shropshire), 1st Prize, 50's quality, good length and bulk.
Pieces, Bellies .	1	3	9½	0	0	11¼	
Std. Pieces and Locks . . .	0	7	4	0	0	1¾	
Total value of fleece				£0	7	7¾	
Fleece . . .	6	10	22½	0	12	5	Down Ewe Fleece (other than Shropshire), 1st Prize, 58's quality, excellent length, style and colour.
Pieces, Bellies .	1	5	13½	0	1	5¾	
Std. Pieces and Locks . . .	0	3	6	0	0	1⅛	
Total value of fleece				£0	13	11⅞	

Description	Weight lb. oz.	Value per lb.		Exhibit, Prize, Judge's Remarks
		d.	£ *s.* *d.*	
		(Polworth Type.)		
Fleece . . .	10 8	30	1 6 3	Cross-bred Ewe or Wether Fleece (50's or finer), 1st Prize, 64's quality, excellent length, style, and bulk, very soft handling.
Pieces, Bellies .	3 0	21½	0 5 4½	
Std. Pieces and Locks . . .	0 6	10	0 0 3¾	
Total value of fleece			£1 11 11¼	
		(Corriedale Type.)		
Fleece . . .	7 10	20½	0 17 10	50's, 56's quality, excellent length, fair style and bulk.
Pieces, Bellies .	1 3	16	0 1 7	
Std. Pieces and Locks . . .	0 3	8	0 0 1½	
Total value of fleece			£0 19 6½	
Fleece . . .	9 6	27	1 1 1	Merino Ram Fleece, 1st Prize, 64's quality, good length. Fair style and soft handling.
Pieces . . .	2 1	22½	0 3 11	
Bellies . . .	1 0	18½	0 1 6½	
Std. Pieces and Locks . . .	0 10	9½	0 0 6	
Total value of fleece			£1 7 0½	
Fleece . . .	9 0	25½	0 19 1½	Merino Ewe Fleece, 1st Prize, 60's–64's quality. Fairly bulky, fair style, slightly discoloured.
Pieces . . .	2 5	20	0 3 10	
Bellies . . .	1 1	17	0 1 6	
Std. Pieces and Locks . . .	0 9	—	0 0 4¾	
Total value of fleece			£1 4 10¾	

The University,
Leeds.

ALDRED F. BARKER.

CONCERNING VETERINARY RESEARCH.

It would not appear that the recent history of development in research. and provision for research, in Animal Pathology, has as yet been narrated in the form of a comprehensive story. It may fairly be said that the story, in its most recent stages, circulates around the activities of the Ministry of Agriculture.

In 1905, when the writer joined the Ministry (then the Board of Agriculture), the only departmental provision for research consisted of a room below the street level, opening on to Old Scotland Yard. It is not possible to produce photographic records of this room, as none are extant. To describe it as inadequate would be dealing very lightly with its shortcomings. Swine Fever and other specimens were received for diagnosis, and the laboratory, if it might be called such, was a nuisance to the occupants of rooms in its near vicinity, and often destroyed the appetite of the workers, if their work brought them into the room about meal times.

Towards the end of 1905 the late Lord Ailwyn, then Mr. Ailwyn Fellowes, President of the Board of Agriculture and Fisheries, obtained a grant from the Treasury and appointed a Committee of scientists and agriculturalists to investigate Epizootic Abortion. The Committee finding it necessary to obtain special premises for its work, was able to rent a house with outbuildings, loose-boxes and paddocks, known as "The Poplars," at Sudbury, Middlesex. The laboratory accommodation at "The Poplars" was meagre, consisting of one fairly large room well lighted for microscopical work, with two small ante-rooms, one of which was suitable for an incubator room and the other for a sterilising room. The laboratory with adjoining incubator room is portrayed in Fig. 1. As the Chief Veterinary Officer and the Secretary of the Committee, a member of the veterinary staff, had to spend a good deal of time at "The Poplars" in connection with the work of investigation, it came about that a certain amount of the laboratory work, which had been carried on under most difficult conditions at Whitehall, was transferred to "The Poplars." At the end of the first tenancy agreement at "The Poplars" the laboratory investigation work connected with the Ministry's administrative activities had increased to such an extent that more commodious premises had to be sought. For this reason, and because stockowners were pressing more and more for services of this kind from the Board, an attempt was made to obtain larger premises in the same neighbourhood. The Board therefore asked the Office of Works to provide, if possible, larger and more suitable premises, and in 1908 a lease was obtained of Alperton Lodge, Alperton, Middlesex, a dwelling-house with 8 acres of land, and considerable provision in the way of loose-boxes and stables of a kind.

The relations as regards the Abortion Committee then became the reverse of what obtained at "The Poplars," the Board giving hospitality to the Committee.

While at Alperton Lodge the laboratory staff of the Board was increased, which enabled the remaining portion of the work on Abortion to be expedited, and research work in connection with the Board's administrative undertakings and also as regards important maladies at that time outside the schedule of contagious diseases, became an established fact. The room at Whitehall was finally abandoned, and all routine work which had to be done in the laboratory was transferred to Alperton Lodge.

The front of the house at Alperton Lodge is portrayed in Fig. 2, and Fig. 3 shows the drawing-room of the house after it had been converted into the main laboratory.

In 1910 a Committee was set up under the Chairmanship of Mr. G. L. Courthope, M.P., to investigate Swine Fever, with special reference to prevention and treatment by serum and vaccine. The Committee asked for, and obtained a grant from the Treasury through the Board for the purposes of an experimental investigation, and in view of this extension of the work in hand, an annexe, in the form of a corrugated-iron laboratory, together with a small post-mortem house attached, was erected in the grounds of Alperton Lodge (Fig. 4).

The work continued to extend, and there were many visitors from amongst interested stock-owners to Alperton Lodge. Complaints were made by some of the latter regarding the inadequacy and meanness of the premises, having regard to the importance of the work in hand. Shortly after Mr. Runciman became President of the Board in 1911, he visited the premises and expressed dissatisfaction with Alperton Lodge and the conditions with which the workers were surrounded. He appointed a small Committee to consider the question, under the Chairmanship of the late Lord Lucas, then Parliamentary Secretary of the Board. That Committee reported unfavourably on the existing facilities for research by the Board, and recommended that a well-equipped and up-to-date laboratory should be established in a convenient position outside London. Application was made to the Development Commissioners for a grant to carry out the Committee's recommendations. The application was favourably received by the Development Commissioners, and in 1914 a capital grant of approximately £28,000 was made for ground, buildings, and laboratory equipment. The Commissioners also agreed to a maintenance grant of £2,000 a year in the first instance for research purposes.

A site of 40 acres was obtained at New Haw, Weybridge, Surrey, with convenient access to main sewer, Municipal gas and electricity, and Company's water supply. Plans were drawn up by the Office of Works, in close consultation with the Chief Veterinary Officer of the Board, and building operations, which were commenced in 1914, were well under way when war broke out. The completion of the buildings was necessarily much delayed owing to the general upheaval, but occupation was given towards the end of 1917. The undertaking was particularly fortunate financially, in that the building and other contracts had been made before war was anticipated. The advent of war, and the conditions which arose therefrom, certainly added considerably to the anticipated cost, but it was possible, practically within the estimates, to complete the buildings and equipment before building and other prices began to soar in the appalling way which arose towards the end of and after the war.

The front of the main laboratory building is shown in Fig. 5. Fig. 6 shows one of the wings, which adds considerably to the laboratory accommodation. Fig. 7 shows piggeries, serum block and sets of loose-boxes for experimental animals, being only one side of the central paddock. There are no fewer than 6 nests of boxes, 32 in all, besides byres. These are built and arranged in such a manner that experimental animals housed in different boxes can have no communication with animals under another experiment, although possibly in proximity.

Fig. 8 shows the interior of one of the large piggeries. The outbuildings shown just at the back of the main building consist of a large centrifuge room, a specially isolated laboratory for particular work, a post-mortem room for large animals, and cold storage plant worked by an electric motor. A large incinerator is installed in the grounds. There is also an experimental sheep dipper (Fig. 9).

With regard to the main building; it consists of a series of laboratories, offices, library, museum, laboratory kitchen, sterilising room, incubator rooms and photographic room. Some of these rooms are depicted in Figs. 10 to 18.

In 1921 the National Poultry Institute Advisory Committee, after a visit to the laboratory, expressed a strong desire that additional provision should be made at Weybridge for the investigation of poultry diseases, the industry itself having subscribed the sum of approximately £6,500 for poultry investigation in its various branches. This recommendation was favourably received and acted upon by the Ministry. A further amount of £19,500 having been added from the Corn Repeal Fund for research in connection with the various ramifications of the poultry industry, a capital sum of £2,250 was assigned for the erection of supplementary buildings necessary for the purpose,

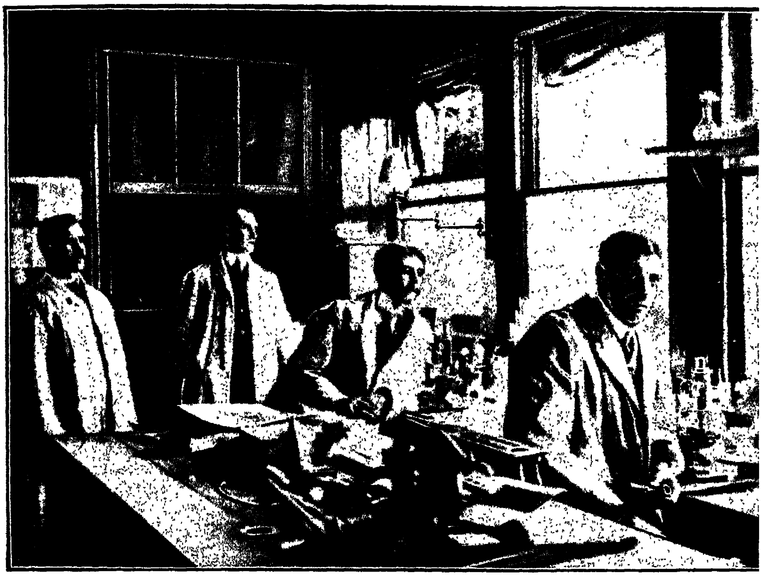


Fig. 1.—Laboratory at "The Poplars."

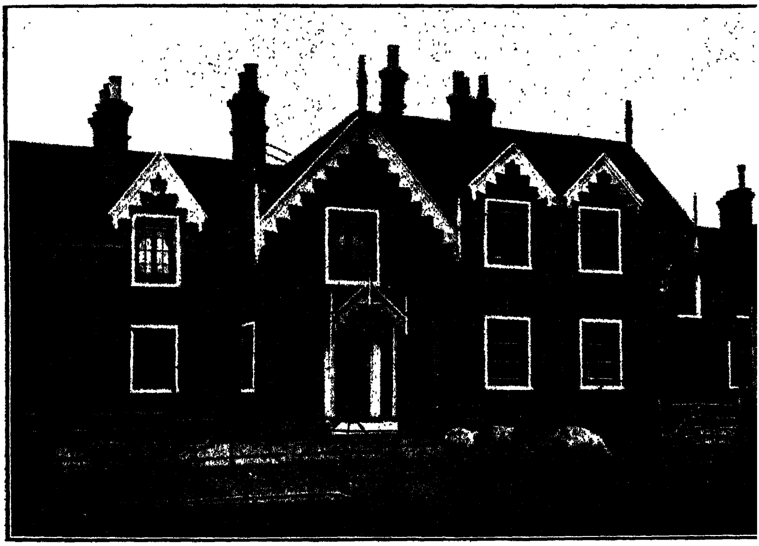


Fig. 2.—Alperton Lodge.

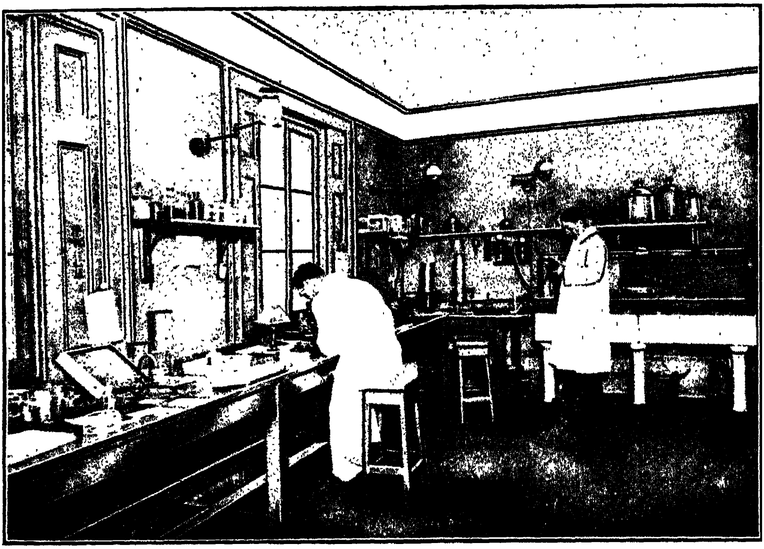


FIG. 3.—Drawing Room of Alperton Lodge, as Main Laboratory.

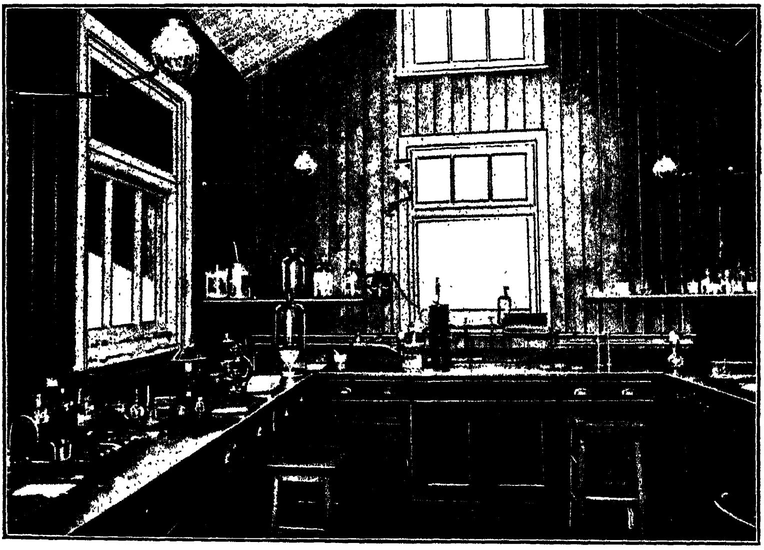


FIG. 4.—Swine Fever Investigation Laboratory, Alperton Lodge.

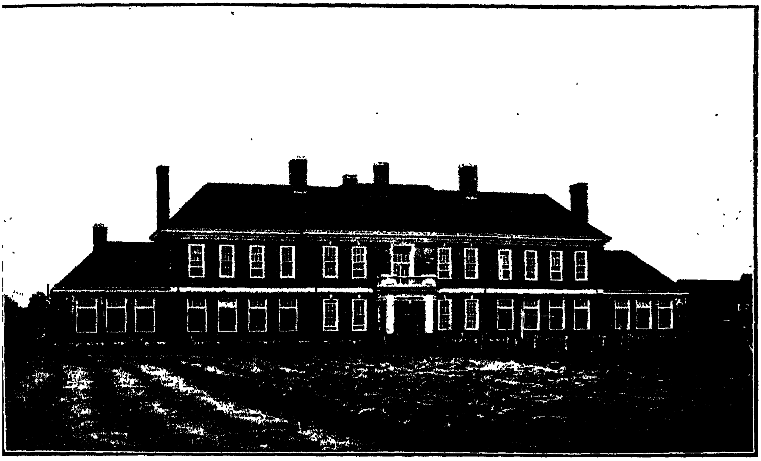


Fig. 5.—Front of Main Laboratory Building, Weybridge.

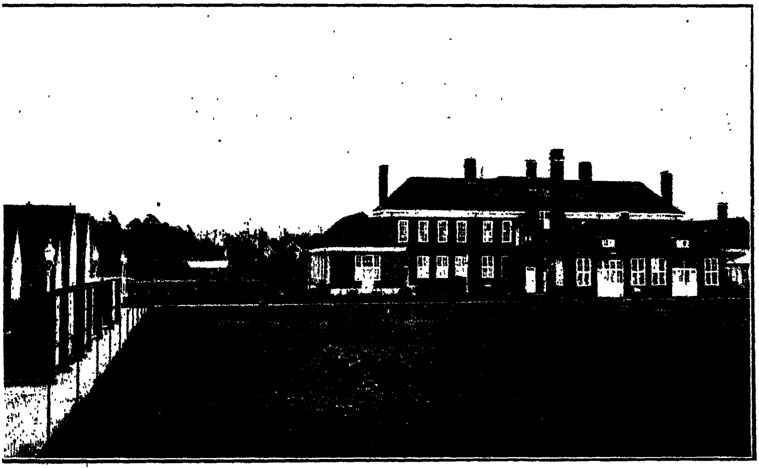


Fig. 6.—Back View of Main Laboratory Building, Weybridge, showing the wings which add to the Laboratory accommodation, Heating and Motor House, Post-mortem room for large animals, outside Laboratory for special Researches, Cold Storage accommodation, and at side of paddock, small isolation pens for experimental animals and Nests of Loose Boxes for larger animals.

*

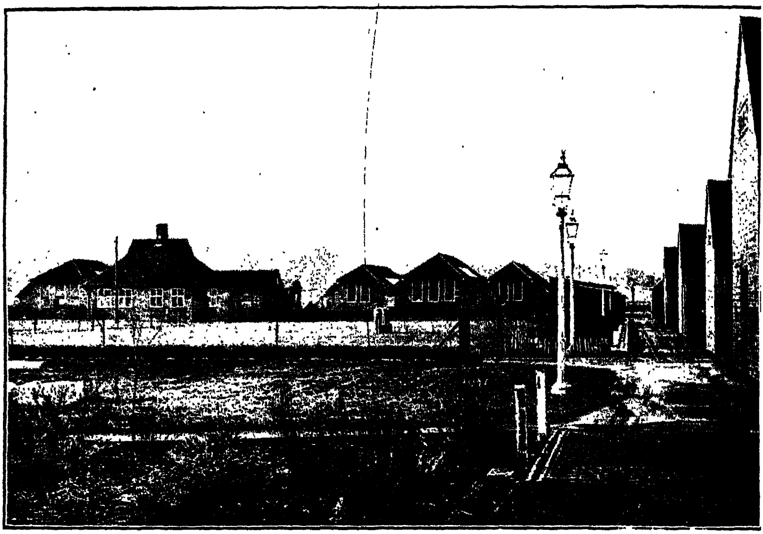


FIG. 7.—Showing the two Piggeries, the Serum Preparation Block, Weighbridge and Nests of Loose Boxes.

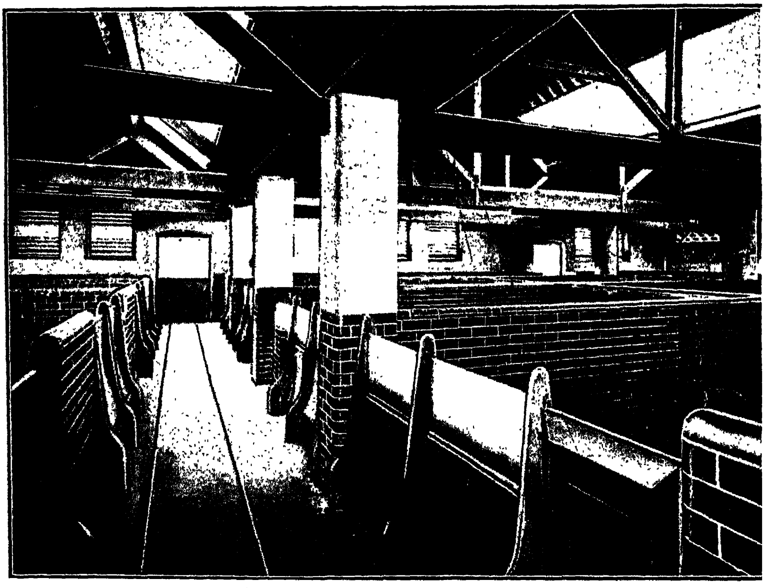


FIG. 8.—Inside of Piggeries.

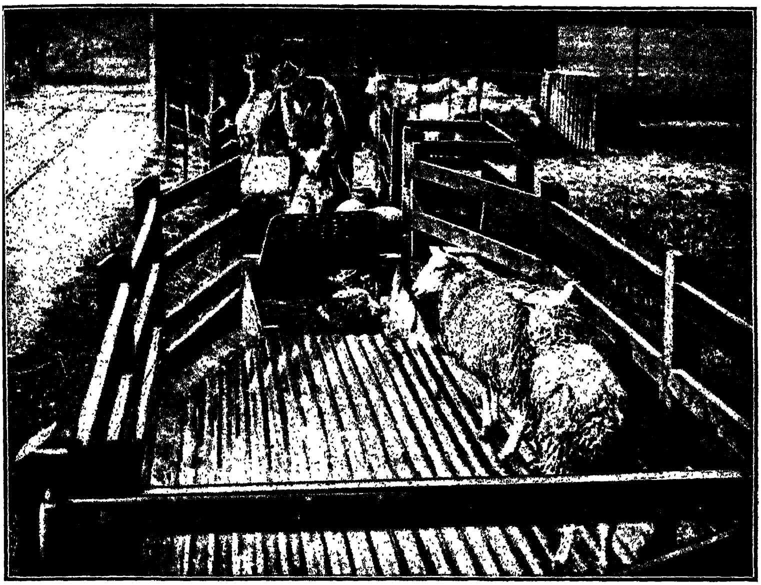


FIG. 9.—Experimental Sheep Dipper.

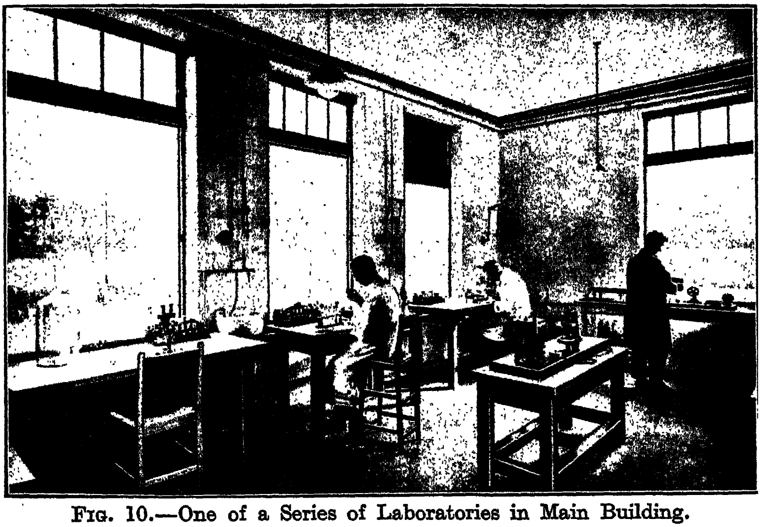


FIG. 10.—One of a Series of Laboratories in Main Building.

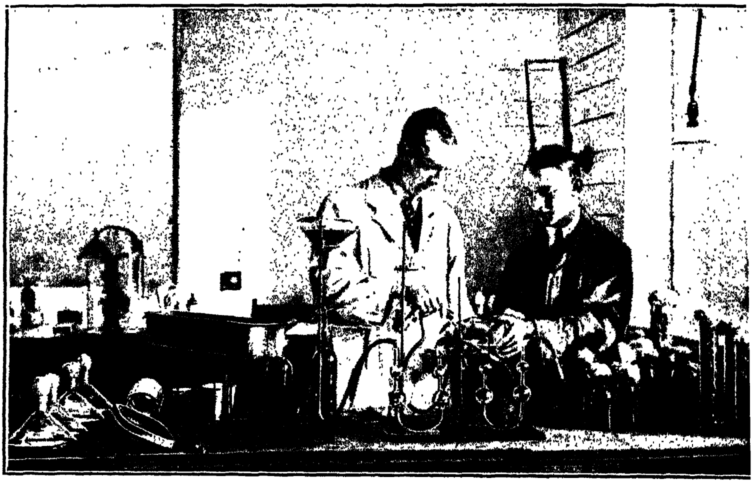


FIG. 11.—Vaccine Laboratory, showing Anti-abortion Vaccine being prepared for distribution.

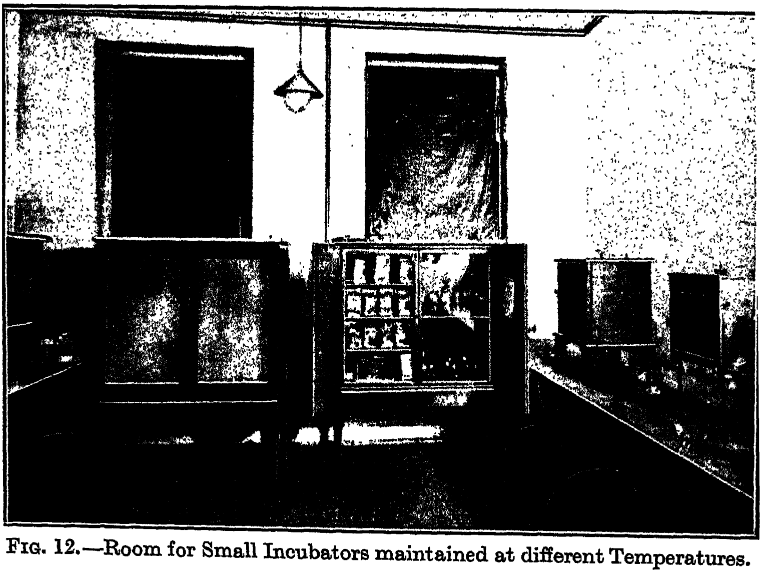


FIG. 12.—Room for Small Incubators maintained at different Temperatures.

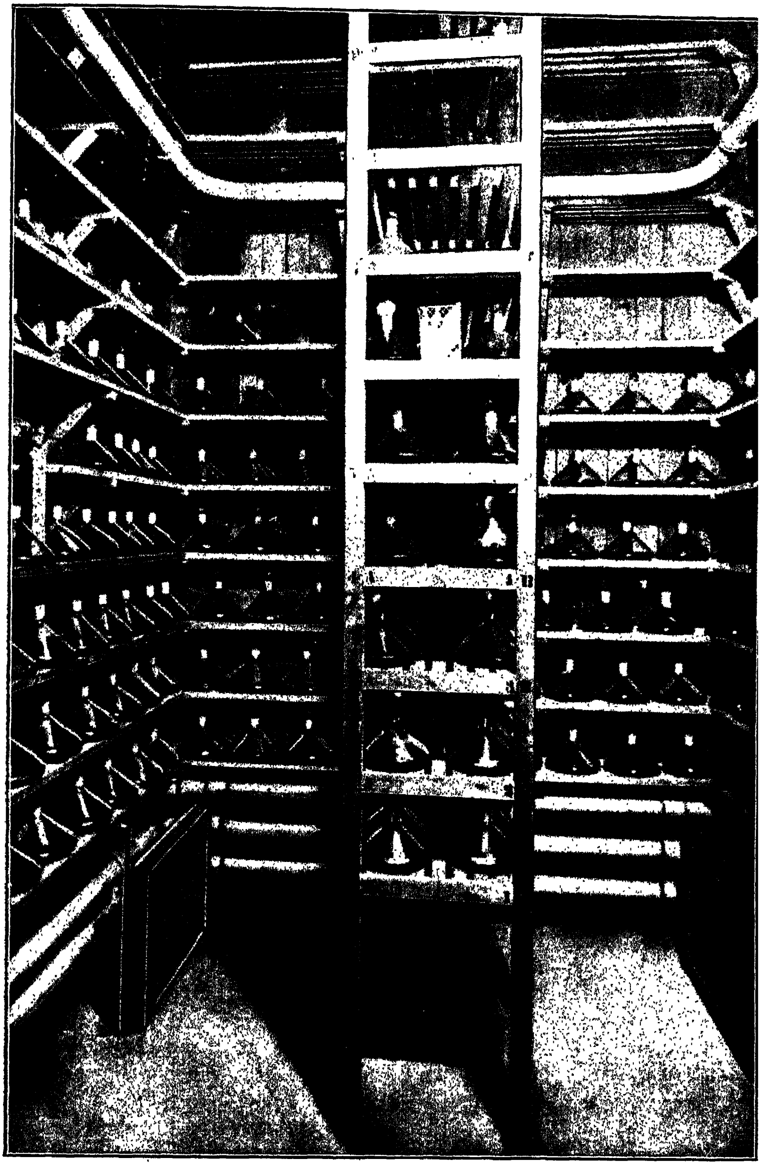


FIG. 13.—Room Incubator for Cultivation of Anti-abortion Vaccine.

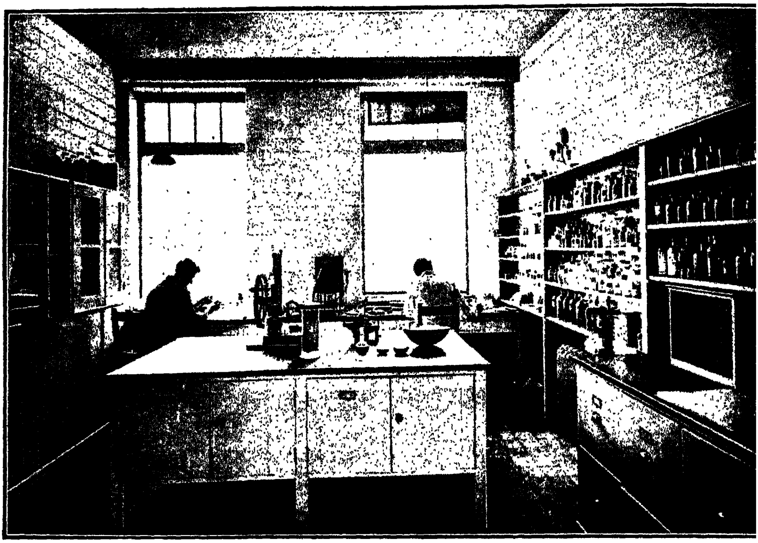


FIG. 14.—Laboratory Kitchen and Chemical Room.

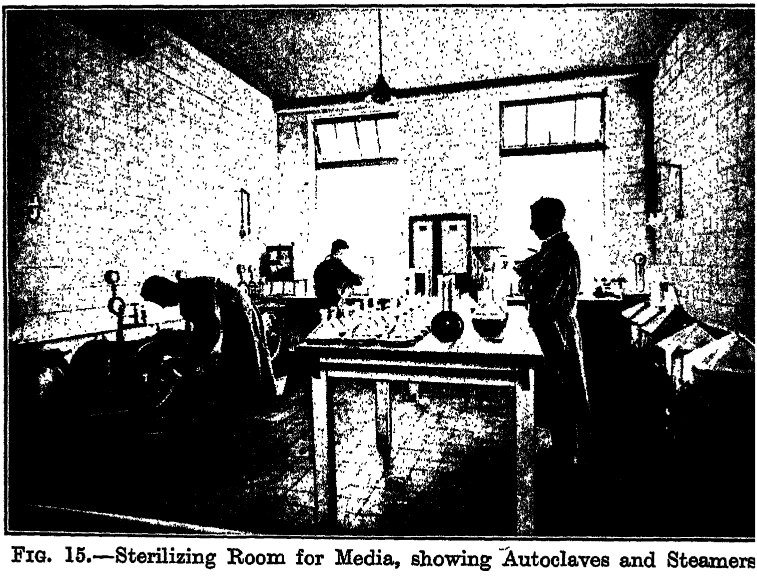


FIG. 15.—Sterilizing Room for Media, showing Autoclaves and Steamers

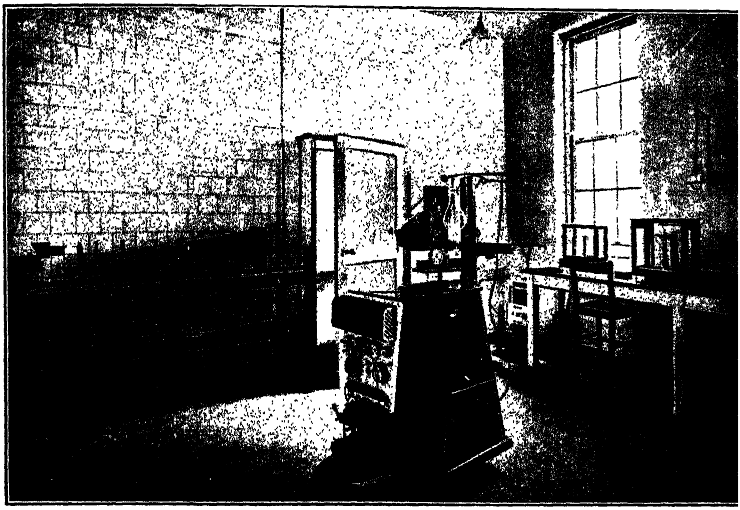


Fig. 16.—Photo-micrographic, X-ray and Ultra-Violet-ray Room. Da room with double doors opens off.

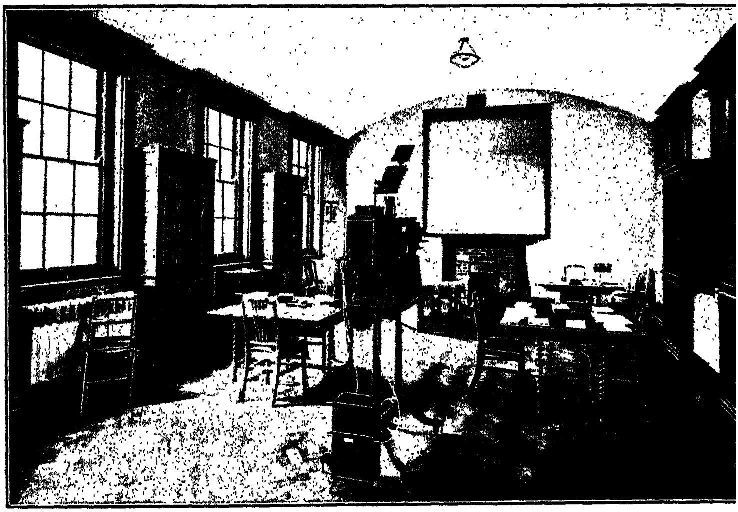


Fig. 17.—Library and Lecture Room.

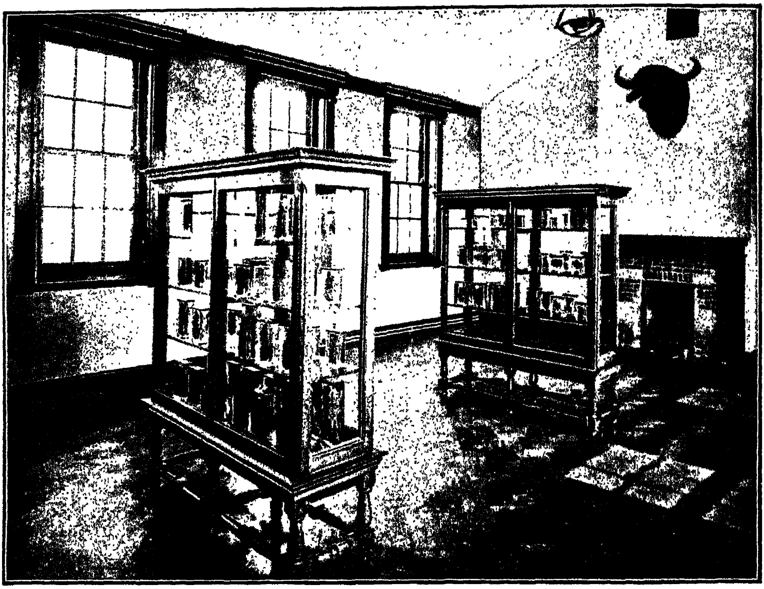


FIG. 18.—Part of Museum.

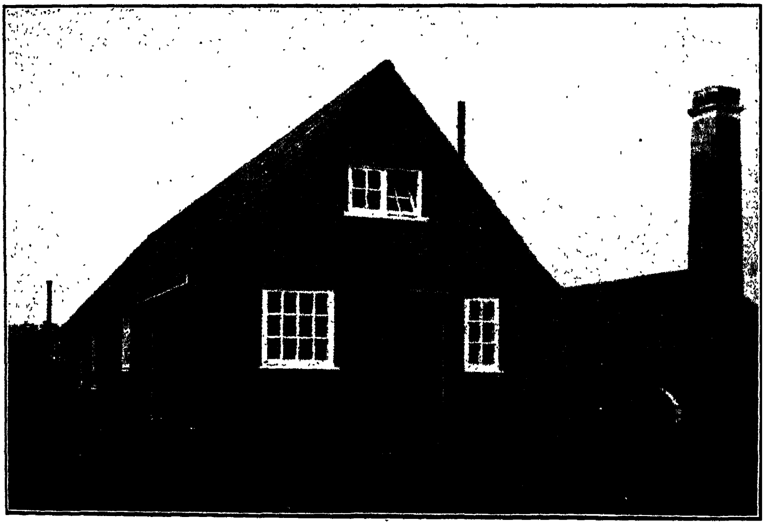


FIG. 19.—Egg Incubator Room, small Animal Room, etc., as described in text. Large Incinerator to right.

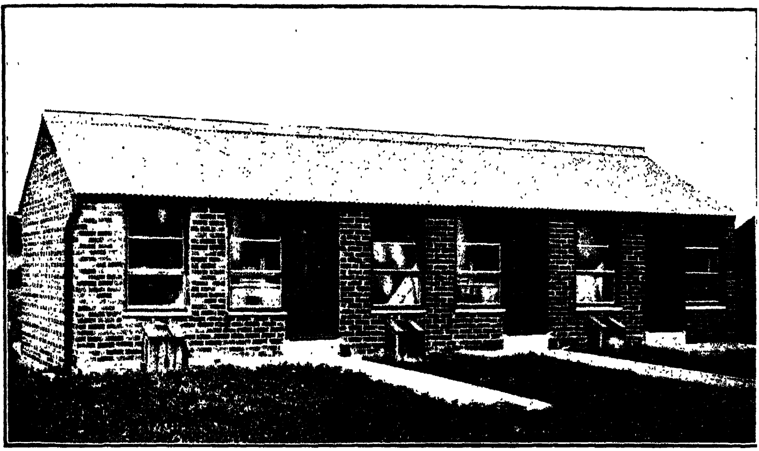


Fig. 20.—Nest of Six Brooder Houses, facing alternately.

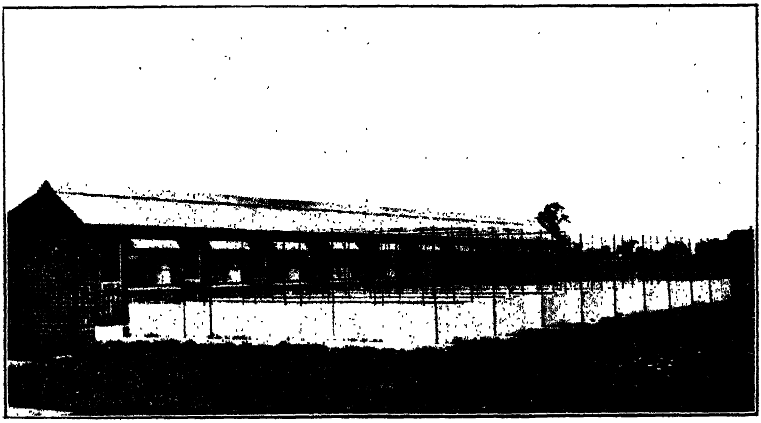


Fig. 21.—Nest of Twenty Fowl Houses and Runs, facing alternately.

and a maintenance grant of £1,250 to cover the expenses of research.

The building shown in Fig. 19 consists of a small room for the examination of eggs, a room for egg incubators, a food preparation room, and a small, specially heated, room for the animals under experiment which can be dealt with in cages.

A nest of 6 brooder houses is shown in Fig. 20. These it will be observed open alternatively on each side of the building. They are completely sealed off from each other, although internal provision is made in some of them, by removal of a small bulkhead, for a certain amount of direct or indirect contact, with a view to testing contagiousness. The idea of this nest of houses is that chicks in one compartment, suffering from a contagious disease, can be isolated completely from others in the next house, or, if so desired, allowed various degrees of contact for experimental purposes. The compartments are all constructed so that complete and rapid disinfection is an easy matter.

A nest of 20 fowl houses and runs of similar construction is shown in Fig. 21. The houses and runs face alternately, the object being, as in the case of the brooder houses, to control isolation or contact.

Before the creation of the Development Fund as mentioned above, in 1909, research in connection with diseases of animals had to be carried on by grants for a specific purpose, made from time to time by the Treasury, and these grants usually took the form of financing an *ad hoc* Committee. By the Corn Repeal Fund created by the Corn Production Act (Repeal) Act in 1921 a provision of £850,000 for England and Wales for the period 1922–3 to 1926–7 was made for agricultural research in England and Wales, and in 1924, during Mr. Noel Buxton's term of office as Minister for Agriculture, a further addition of £500,000 was made to this fund in respect of the period 1924–5 to 1928–9. With this fund available very material development in connection with agricultural research became possible, and research in connection with animal diseases participated in the extension.

A Capital sum of £32,500 was sanctioned in aid of the building and equipment of a Pathological Research Institute at the Royal Veterinary College, London. A Grant of £34,000 was provisionally sanctioned for the establishment of a similar Institute at Cambridge. Further, a sum of £30,000 was paid to Cambridge University to provide for the endowment of a research Professorship in Animal Pathology. These Institutes are not yet complete for occupation, but research work is nevertheless in progress.

The maintenance grants for research on diseases of animals for the academic year October, 1924, to September, 1925, are approximately as under :—

(1) Ministry's Veterinary Laboratory	£3,000
(2) Royal Veterinary College	£4,500
(3) Animal Pathology Research Institute, Cambridge.	£10,000

(4) A grant of £3,500 is also made to the London School of Hygiene and Tropical Medicine, for helminthological work.

There is also provision for making occasional grants from the Research Funds in aid of special pieces of research in animal pathology which it is deemed advisable should be conducted outside the Institutes, and further, on account of the importance which attaches to the problems of Foot and Mouth Disease, a special Committee has been set up to engage in and arrange for research in connection therewith.

The Committee, which is expected to sit for some years, has received a grant of £10,000 to cover its work during the current financial year. It has taken over what used to be known as the Cattle Testing Station at Pirbright, which is in an exceedingly well isolated position, and has fitted it up specially to enable experimental research to be conducted on a sufficiently large scale, and as free as possible from chances of accident.

In addition to the Institutes already mentioned, Officers with the designation of Veterinary Advisors have been placed at the University College of South Wales (Cardiff), the University College of North Wales (Bangor), and at Armstrong College, Newcastle-on-Tyne. The duties of these posts, which are financed from the Research Fund, are that the appointed Veterinary Advisor reviews from time to time as wide a district as possible, keeps himself informed of the position of that district so far as diseases of animals are concerned, and calls in the assistance of one or other of the Research Institutes, and collaborates therewith, for the purposes of investigating any prevalent disease which is causing loss to stock-owners in that district.

To assist in the provision of veterinarians trained in research, two Veterinary Research Scholarships, each tenable for three years, are awarded by the Ministry annually, provided suitable applicants present themselves.

To return to the subject of the Ministry's laboratory, its divisions, provisions, and activities may be stated broadly as follows :—

(*a*) In co-operation with the field and headquarters staff of Inspectors it assumes responsibility for the diagnosis of the contagious diseases of animals which have been scheduled; prosecutes research regarding laboratory methods of diagnosis, and special problems in the pathology or epizootiology of these diseases, upon which the Headquarters staff requires further information with a view to simplifying and improving the administrative measures designed for control or eradication.

(*b*) In the section of general pathology research is carried on regarding the pathology of diseases, or diseased conditions, considered to be of importance to agriculture, without regard to whether they are scheduled, contagious, or not. No one Institute, however, could presume to cover the whole field of diseases of animals concerning which further investigation is desirable, and to meet this, and prevent overlapping so far as it is inexpedient, the Directors of the different Institutes meet and consult with each other in reference to programmes of research.

(*c*) In the section of helminthology investigation is concentrated on diseased conditions due to parasitic worms, their pathology, epizootiology, the life cycles and habits of the parasites and curative and preventive measures.

(*d*) In the poultry section the work is concentrated on diseases of poultry in general, and on contagious diseases in particular.

Inasmuch as each section has problems in common, and those which have close affinities, the division into (*a*), (*b*), (*c*) and (*d*) may be in reality a somewhat artificial one, when material or information has been sorted out, as it were, and collaboration becomes a desirable necessity.

The results of research undertaken at the laboratory are communicated to the scientific journals, and are also made available to stock-owners by means of leaflets, bulletins, and illustrated lectures at pre-arranged centres. It would obviously be beyond the scope of this article to attempt to give in lengthy detail the results of all the investigations which have been carried out at the Ministry's laboratory, but some idea of what has been accomplished and what is in progress may be found interesting to those who may read this article.

Epizootic Abortion.—Working in collaboration with the Royal Veterinary College for the Abortion Committee, the discovery of the Abortion bacillus by Bang and Stribolt was confirmed. It was further shown: that Abortion was a microbic disease, of which the act of aborting was only a symptom which does not always arise; that natural infection takes place most commonly by way of the mouth, and that the bull plays a very minor part in the spreading of the disease; that certain bodies are present in the blood of an infected animal, which enables the existence of infection in the latent stage to be diagnosed by tests, and provision to be made for the removal of positive reactors to the test from those animals which are not infected.

A method of giving a high degree of resistance to natural infection by inoculation of cultures of modified bacilli to nonpregnant animals was elaborated, and this has received extensive application in practice.

Abortion which prevails from time to time in flocks of ewes was also studied, and was shown to be caused by a hitherto unknown microbe which was described as the "vibrio of Ovine Abortion." This somewhat peculiar microbe was demonstrated to be pathogenic to pregnant bovines, though feebly so, and it was actually found to be responsible for two small outbreaks of bovine abortion investigated in the field. The epizootiology of the ovine disease was also studied. Full accounts of these investigations were published in the Committee's Reports, Cd. 4742, 4863, 7156, and 7157, and since their publication the findings, including those relating to ovine abortion, have been confirmed by various workers in other countries.

Swine Fever.—It is only possible to give a short outline of the work carried out for Mr. Courthope's Committee, but a full account will be found in the appendix to Part IV, Final Report, Cd. 8045, 1915.

It was shown:—that the excretions of affected pigs soon lose their virulence under natural putrefactive processes, and that it was safe three weeks after all pigs concerned in an outbreak had been removed, to bring new pigs on to the premises, even if chemical disinfection had not been carried out (this has led to very material savings in respect of disinfection by the authorities); that contrary to a rather widespread belief, rats could not be infected with Swine Fever, and could only at most be minor agents in spreading infection mechanically; that lice and fleas cannot carry infection from pig to pig; that infected pigs, though quite healthy in appearance, might transmit the disease to others three days after being infected; that pigs which had passed through an acute attack of Swine Fever and become so-called chronic wasters, might be infective to others for over 80 days; that the existence of immune and recovered carriers of infection is probable, but the proportion thereof is small; that pigs after recovery from a natural attack of the disease, or a controlled attack induced by injecting anti-serum and virus, were likely to remain immune for the remainder of their lives; that the red cells of the blood in an affected pig were heavily loaded with the virus, which seemed to adhere to them.

Various methods of artificially bestowing immunity were investigated, and observations on the application of such methods in practice were conducted on a large scale.

Sheep Scab.—When a more general campaign by administrative measures based largely on dipping, was begun against Sheep Scab in 1905, it became apparent that, although the life cycle of the causal parasite had long been known, it did not complete our knowledge for administrative purposes, and that further and important information was desirable on the habits of the acarus under actual conditions. Combined field and laboratory observations were undertaken, which amongst other results showed:—that when sheep are experimentally infested even by heavy infestation, about three generations of the parasite, or may be more, have to come into existence before outward signs of the disease become apparent; that the symptoms are seldom in evidence before the twenty-fifth day, and may not attract attention for much longer periods, if the sheep have been dipped once or several times at intervals beyond that of the life cycle (12–14 days) of the parasite; that this latent infection, as it were, explained some of the very perplexing problems which arose for the inspectorate in the field in their attempts to trace the origin of some outbreaks in certain consignments of sheep which during the previous weeks, or even months, had passed through several owners, most of whose flocks were found to be clean on examination; that the sheep concerned in the majority of outbreaks in this country had actually been dipped once in the season, and some even twice with a long interval between the dippings; that if eggs removed from infested sheep, say in wool, have not hatched in eight days, they are not likely to hatch at all; that in wool removed from the affected sheep, and containing the parasite in all its forms, such as may be expected to adhere to the sides of pens, posts, fences, etc., the parasites do not remain viable for more than thirty days, and that most of them are dead in fifteen days; that those which survived this period are in all cases the older forms—adults and nymphæ—and that they are then in a very feeble condition; that all attempts to infect sheep with these enfeebled acari failed; that no eggs which had been kept off the sheep in this way (i.e., without being incubated) longer than eight days could be got to hatch.

The results of these observations have been of great service in designing some of the administrative measures against Scab.

Louping-ill of Sheep.—This is a disease of sheep which prevails and often causes much loss, mainly in the Spring. It exists on certain farms in Scotland and in the North of England. Its manifestations vary from a slight indisposition to very serious and often fatal illness characterised by coma, or a form of paralysis which renders the animals useless. It was shown:—that the disease in its most serious forms was due to inflammatory processes affecting the brain or spinal cord, or both; that the blood of an affected animal caused a pathogenic reaction in healthy sheep if inoculated thereto, and that the blood of a recovered animal may remain infective in this way for months; that the inoculation of such blood usually did not cause a serious affection, except in very young lambs, and that the inoculated animals after recovery proved to be highly resistant to further inoculation and to exposure on infected pastures; that an affected animal did not infect others by close association—in fact, that the disease was not directly contagious; that the infection was passed on to other animals and kept up on the pastures by ticks, which apparently in feeding on the blood of infected sheep withdrew an infecting agent therefrom, and this agent, after the ticks had moulted to another stage, could be passed on by them to a second vertebrate host upon which the ticks might feed. A study of the life history and habits of the ticks concerned was also carried out.

Redwater (*piroplasmosis*) *of Cattle.*—This disease, which is due to a blood parasite—a piroplasm—and is well known in certain parts of England and Wales, was investigated. The piroplasm of English Redwater, as it usually occurs, was shown to be due to a different species of piroplasm from that which causes Tropical Redwater, and that while the virus of the one can immunise against itself, as it were, neither one gives immunity against the other. Blood parasites of this class as they exist in tropical and sub-tropical countries are the cause of high mortality amongst the pedigree stock imported from Great Britain, and seriously obstruct the export trade. The viruses of some of these more destructive diseases—piroplasmosis and anaplasmosis—have been imported from South Africa and South America by means of infected ticks or by bovine carriers. It has been found possible to modify their virulence, and in their modified and non-fatal form they are continuously kept up at the laboratory in bovine animals which have become healthy carriers. The blood of these immune carriers, which can be relied upon to give only a benign attack of the diseases in question, followed by resistance to a severe attack, is available for the immunisation or "salting" of pedigree animals before export.

Bracken Poisoning in Cattle.—Every year in the early Autumn a considerable number of cattle in certain parts of the country were found to die of a peculiar disease, which, from the fact that usually several running together were affected, was thought by some observers to be a contagious disease. As it occurred on pastures where bracken was growing, and since the fronds were observed to have been browsed, it was thought possible by others that it arose from eating the bracken. There was difficulty in accepting this view, however, as cattle had been frequently observed to eat bracken without ill results, and it was also known that the fatalities continued for some time—a week to a fortnight—after the cattle had been removed from access to bracken in the pastures.

The circumstances surrounding certain of these outbreaks were investigated, and the symptomatology and pathology of the disease were studied. It was found that there always was a history of access to bracken. The symptoms and lesions were similar to those of acute scurvy in man; bleeding from the mucous membranes of the eye, the nostrils, the genital orifice and the bowel; more or less voluminous hæmorrhages under the skin and into the muscles, giving rise to tumours; high fever; and on post-mortem examination multiple hæmorrhages into the various tissues and organs, particularly the bowel, were found.

Feeding experiments were undertaken with the fronds of bracken in the early Autumn, just as the spores are beginning to form. It was found:—that bovines so fed developed exactly the same disease as that occurring in practice; that in order to produce it, however, the animals had to be given about 10 lbs. a day, and that the feeding had to be carried on over a period of from 25 to 30 days; that the poison appeared to be cumulative, and also to require a certain time to effect its action, when the symptoms appeared with explosive suddenness; that given a poisonous amount to have been consumed, the feeding might be stopped, yet the symptoms would appear at the appointed time, which explained those cases which arose in practice after the animals had been removed from suspected pastures.

It has still to be explained why some animals eat the bracken and others do not, and investigation is still in progress to elucidate this and other points in connection with Bracken Poisoning.

Scrapie in Sheep.—This is a disease of sheep which at the present day prevails in certain parts of the South of Scotland and of the North of England. From about the middle of the eighteenth century onwards, however, it was well known as "The Rubbers" in many counties in England—Devon, Somerset, Wiltshire, Cambridgeshire, Norfolk, Lincolnshire, Yorkshire and Northumberland. It not only caused great loss, but also much disturbance in the sheep business, owing to the suspicion with which sheep farmers regarded their neighbours' flocks. The disease is also known in Spain, France and Germany, and the French and Germans assert that it was introduced into their countries by merino sheep from Spain. There is a certain amount of evidence that the disease may have been introduced into Great Britain by merino sheep, but it is not convincing; in fact, the written records so far available are too indefinite to enable anyone to say with accuracy when the disease first became known in Great Britain.

The disease is in the ordinary course a very slowly spreading one. There can be no doubt that the first recorders of the "Rubbers" in England only began to write about it after it had gained extraordinary prevalence, and it seems probable that it lurked in a few flocks long before it was recorded. The first merinos are said to have come to England in the time of Edward IV (latter part of fifteenth century), and there were other importations in the time of George IV. Knowing what we do now of the disease, viz., that it only spreads if there is movement of affected sheep, followed by breeding therefrom, it is conceivable that it could be introduced into, and remain in a very limited locality for ages, if there was no general trade to other districts of sheep for breeding.

The disease appears to have been got rid of finally from England, with the exception of Northumberland, where it still exists, sometime about the fourth decade of the nineteenth century, though how this was brought about there is no record. Certain it is that there are no living sheep farmers in England south of Northumberland who have any recollection of the disease in the flocks of England, and few have even heard of it, except one or two who have had the ill luck to import half-bred border Leicesters from some of the Border lamb sales, a practice, which if it becomes common for breeding rather than feeding purposes, will certainly re-infect the flocks of England.

The position of Scrapie, its symptoms and epizootiology, deduced from the circumstantial evidence available from the field of practice, was reviewed by the writer in a lecture delivered before the Jarrow and Ettrick Pastoral Society in 1913. (See Annual Report Board of Agriculture and Fisheries, 1913.) It was pointed out then that the disease had what might be called an incubation period of at least two years, which meant that each experiment would have to last that time or longer, before any lesson obtained thereform could be applied by subsequent experiments designed to carry the investigations a stage further.

It may be said shortly that the disease seldom occurs before the age of two years, although there are some exceptions to this. It may occur at that age in sheep which as lambs have been removed from their mothers, and taken to the laboratory. It is characterised by symptoms of nervousness and motor disturbance, and later by a persistent rubbing against fixed objects and gnawing with the teeth at parts, to relieve what seems to be an interminable itch, yet the skin seems unaffected, except perhaps by the mechanically produced lesions. As the disease progresses the sheep emaciates almost to a skeleton, fits often supervene, and the animal becomes more or less paralysed in the hind quarters, but may be also in front, and usually dies in from three to four months.

During the last ten years investigations have been carried on at the laboratory, the main objects of which have been to determine:—if the disease can be spread by ordinary contact between affected and healthy sheep; whether there is a specific agent of infection which can give the disease by inoculation; whether the transmission from parent to offspring, which undoubtedly occurs in a variable proportion of cases, depends on congenital infection passed on by, or through, the dam, or if the disease is transmitted from the parents as an hereditary taint. The investigation has involved, amongst other things, direct and cross breeding of small groups of animals from parents of known history, and has given most interesting results, which will be published in full at an early date.

Foot and Mouth Disease.—Nothing has been said so far regarding experimental investigations applied to Foot and Mouth Disease. The reason is that until recently, when as an aftermath of the war on the Continent the invasions of this country by the disease became almost unbearable, agricultural opinion was strongly against the establishment of anything of the nature of an experimental station where this very contagious disease would be kept up in animals, and from which infection might escape to herds and flocks outside. As previously mentioned, however, an *ad hoc* scientific committee to investigate the disease was appointed by the Minister of Agriculture (Mr. Buxton), with the approval of the Royal Agricultural Society of England, the National Farmers' Union, and other important agricultural associations. This Committee will report in due course, but it must not be expected that their labours will be of short duration, having regard to the fact that some of the best scientists in Europe have laboured for many years to solve the problems of Foot and Mouth Disease. It must not be thought, however, that nothing is known about Foot and Mouth Disease, experimentally or otherwise, or that no investigation of the disease, its epizootiology and apparent vagaries, has been pursued in this country. The position is that an enormous amount of information is recorded and available, but there is very considerable lack of complete information on aspects of the disease—manner of invasion of clean countries, or spread over long distances without the direct intervention of affected animals, immunity, etc.—definite information upon which would be of the highest value to State Veterinary Medicine.

In addition to the above subjects, which represent some of the basic investigations of certain diseases on a comprehensive scale, investigations which, from their nature, demand continuous work from year to year, as it were, and over a number of years, work of the nature of smaller contributions towards the solution of other problems has been carried on. It is not in the least intended, however, to convey the idea that the results of what have been referred to as basic investigations have exhausted the information obtainable by research; far from it. There is no disease concerning which the information is ever so complete that further research cannot add to our knowledge thereof and our methods of dealing with it. The most one generation of workers can hope to do, is to carry the problem a few stages further, thereby providing a more extended promontory from which future workers may jump off. The results in one generation, however, may reach a point of great value to the State.

Many important diseases of animals still await the serious attentions of the epizoologist, the pathologist, the helminthologist and the therapeutist. Amongst these may be mentioned enzootic sterility of cattle, tuberculosis, diseases of young life characterised by forms of persistent diarrhœa which often end fatally, diseases caused by certain worms which inhabit the stomachs of cattle and sheep, and bacterial and parasitic diseases of poultry. A Section devoted entirely to the investigation of the latter, and the dissemination of information, has, as previously mentioned, been installed at the Ministry's Veterinary Laboratory; very considerable progress has been accomplished, and reports will be published from time to time.

Although this article only pretends to supply a general idea of some of the trees of knowledge which have been planted and may reasonably be expected to spread their branches more widely as time goes on, it would none the less be incomplete if some reference were not made to the training and provision of research workers, upon whom it will devolve to maintain the Institutes in active being.

The problems which arise are, and always will be, intensely veterinary; but that does not mean collaboration, when necessary, of the veterinary pathologist with research workers on human pathology, on chemistry, on entomology, and on zoology, may not be of the greatest benefit to work which may be in hand. It does mean, however, that for the success and perpetuation of the scheme the principal workers, whatever other scientific qualifications and training they may have acquired, should also be well trained in veterinary medicine. It is the latter training which, amongst other important things, will bring them into touch and close sympathy with agricultural problems and the troubles which embarrass the stock-owner. It is the scientifically trained veterinarian who may be expected to concentrate his continuous and whole attention on the animal question, and it is to him the stock-owner must look to dig out, as it were, and construct the problems in diseases of animals which call for research. The continued maintenance of an adequate supply of men with these necessary qualifications, then, is of supreme importance to the stock industry. The provision of Research Institutes for diseases of animals has now distinct promise of being adequate. In the opinion of the writer, however, the Veterinary Colleges upon which this country must depend for the education of veterinarians qualified to undertake the important responsibilities referred to in this article, are sadly deficient as regards suitable buildings and Chairs which offer a reasonable prospect of attracting the best brains to that most important branch of the profession which is devoted to teaching. It is no exaggeration to say that, as suitable edifices for their purpose, the Veterinary Colleges compare very unfavourably with those of other countries, even with those of countries which Great Britain would call primitive, as compared with herself, and yet Great Britain claims to be the leading country of the world as regards stock-breeding, and presumably desires to maintain that important agricultural position in the face of rapid advances everywhere under modern conditions.

It has frequently happened that wealthy men during life or by bequest have endowed teaching Chairs on this or that branch of a subject at Universities, in order that a perennial form of interest and advance in that particular subject might be assured, but it is a regrettable fact that with the exception of a few veterinarians whom Providence had prospered, no public benefactor has endowed veterinary education.

Research and education in science are mutually dependent; the one cannot be without the other. It is to be hoped, then, that the large section of the community, both inside and outside of agriculture, whose material and sentimental interests are closely linked with the health of our herds and flocks, and of our equine and canine companions, will make it their care that the provision for research on diseases of animals, so well begun, will not be allowed to lag through lack of adequate provision for veterinary education.

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THE ECONOMIC PRINCIPLES OF ESTATE FORESTRY.

THE following article is an attempt to analyse the economics of Estate Forestry. It is written in a belief that, though the present condition of the woodlands on private estates, when regarded as a whole, is thoroughly unsatisfactory, the causes which have given rise to this unsatisfactory state are inside and not outside the industry. If due regard were paid to economic principles, and if business management in forestry were made as efficient as it is in more highly developed industries, then forestry would come to be regarded, not as a plaything for very wealthy landowners, but as a thoroughly sound investment and the most profitable use for a considerable area of our countryside.

The argument set forth in this paper is primarily theoretical, though it is based on calculations made with actual present costs and prices. This is necessary, since very few estates have kept detailed forest accounts over long periods and scarcely any have managed more than a fraction of their woods on economic principles. It appears, however, that those few landowners who have taken a keen business interest in the management of their woodlands are nearly all convinced that forestry, if efficiently conducted, is a highly profitable industry, and they have adopted, as a result of practical experience, the same methods as are found by more theoretical calculations to be the most remunerative.

I. THE FAILURE OF ESTATE FORESTRY IN ENGLAND AND ITS CAUSES.

To determine whether English Estate Forestry is a success or a failure there are two tests that may be applied. The first is the production of timber in proportion to the area of woodland; the second is the profitableness of the system of management. Unfortunately there are no very precise data under either head on which to base an enquiry, but what information exists is so striking in character, that even when allowance is made for a large margin of error there can be very little doubt as to the conclusions.

(1) *Production of Timber.*—When the Census of Production [1] was taken in 1908 it was estimated that the area of woodland in Great Britain was 2,781,963 acres. Returns showed that the volume of timber cut during the year 1908 was round about 15,000,000 cubic feet, or when pit-props and small thinnings are added say 20,000,000 cubic feet. This is equivalent to a production of 7·2 cubic feet quarter girth per acre per annum, or about 9·2 cubic feet true measure. This estimate, however, may not give a true value for *increment*, since a large proportion of the coniferous plantations were then too young for felling and there was probably a greater volume of standing timber in our woods at the end of the year than at the beginning. Also the volume cut in any year is to some extent dependent on markets; when high prices are offered for timber more is cut than at other times and, for this reason, the amount felled in any one year may be very different from the average.

The Forestry Commission [2] have taken the view that the timber felled in 1908 was less than the average annual increase in volume. They have estimated that the average increment before the war was about 14 cubic feet per acre per annum, but that immediately after the war, owing to the heavy war fellings, it was reduced to 12½ cubic feet. If this estimate is compared with that of the production in neighbouring countries, a very serious state of affairs is disclosed. Germany, with an inferior climate to ours, had a pre-war increment of over 48 cubic feet per acre; Holland, 50 cubic feet; and even in Sweden where, owing to the short growing season and the high altitude of much of the forest, growth is much slower than it is here, and where a great part of the forest is uncultivated, the annual increment is estimated at 27 cubic feet per acre.

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[1] Cd. 6277.

[2] Statement prepared by the Forestry Commission for the British Empire Forestry Conference, 1920.

It may be calculated from yield tables that if all our woodlands were coniferous and of full density the average annual increment would amount to about 100 cubic feet per acre. It thus appears that our increment is about one-eighth of what it might be, and about one-quarter of that obtained in other countries such as Germany and Holland where the climate and soil are, on the whole, inferior to those of most of our English woodlands.

This judgment is so damning to British Forestry that it is desirable, as far as possible, to check the figures in other ways, and some evidence can be obtained from the Survey of British woodlands which is now being conducted by the Forestry Commission. The results of this Survey have been published for certain counties, viz., Herts, Suffolk and Brecon, and it is found that of the total area of 90,433 acres of woodland in those counties 10·7 per cent. is covered by conifers, 10·3 per cent. by mixed conifers and hardwoods, 21·6 per cent. by hardwoods, 28·5 per cent. by coppice and coppice with standards. The remainder, 28·9 per cent., is scrub, felled areas and unremunerative woods. Of this area most of the pure coniferous plantations and a small portion of the broad-leaved and mixed woods are really productive; the rest is mostly neglected and is producing very little increment. Thus, the conclusion is reached that only about 15 to 20 per cent. of our woodland is normally productive and, since it cannot be claimed that even the plantations are all properly managed, the estimate that the increment is only one-quarter to one-eighth of what is possible is roughly confirmed.

(2) *The Profitableness of our Present System of Forestry.*—It is quite possible that a system of management which gives a low increment may be defended on economic grounds in that extensive cultivation with low returns per acre is frequently more profitable to the cultivator than more intensive methods of management. There are very few estates which have kept

continuous accounts for a sufficiently long period to judge accurately as to the profits that have been obtained from older woods, and the best method of estimating the return is to assess the capital value of the woods and to express the net income derived from them as a percentage on this capital. Where this has been done it has been found that oak and beech high forest may return about 1 to 2 per cent. on capital; areas of chestnut coppice are highly profitable, ash fairly so, but other coppice is seldom remunerative. Coniferous plantations may yield anything from 2 per cent. to, at any rate in extreme cases, more than 10 per cent. On the whole, when the areas of scrub and other entirely unproductive ground are included, the return to the owners of all our privately owned woodlands is probably not more than 2 per cent. Thus, it cannot be maintained that English woodlands, as at present managed on the large majority of estates, are profitable.

(3) *The Causes of the Present Poor Production.*—The reasons for the depressed state of British forestry must be looked for in the change which has occurred in the timber requirements of the country. In England there are no native timber-producing conifers and the traditional architecture was founded on oak, not deal. Also oak was used for shipbuilding and crooked branches such as were produced by oak standards over coppice were especially useful for this purpose. Further, oak bark, especially coppice-oak bark, was used for tanning. Thus, 100 years ago our woodlands were moderately well adapted to our requirements.

With the industrial revolution all this was changed. Softwood, imported in large quantities from uncultivated forests, took the place of oak for building. Iron, and then steel, replaced oak for shipbuilding. Wattle bark replaced oak bark for tanning. Also metal replaced wood for other purposes, and coal was carried everywhere so that timber was no longer necessary for fuel. Thus, nearly all the best woodland markets were lost.

During this period the actual consumption of timber in Britain may for a while have fallen, but latterly it has risen very rapidly and the consumption per head of population in Britain has increased from about 8 cubic feet in 1871 to about 14·5 cubic feet in 1913. It is clear, however, that the increased supply of timber, which was required to meet the increase in consumption, came entirely from foreign sources, and of the timber and timber products now used in Britain about 94 per cent. is imported and about 90 per cent. is coniferous. These facts should prove reassuring to those who fear that the age of timber is passing.

There has been plenty of time to recover from these market changes and methods of cultivation might by now have been adapted to modern requirements had there been any belief among landowners that they were likely to receive sufficient financial profit to recoup them for the expense and trouble involved. The failure of the old system had, however, so depressed the industry of forestry in this country that there arose a strong conviction that forestry could not pay, and this conviction has now become traditional and determines the woodland policy on most estates. The object of the present article is to show that this conviction is founded on insufficient knowledge; that certain kinds of plantations pay very well; and that if woods were managed on an economic basis they might, in many instances, return a higher rate of interest on the money invested in them than can be obtained from other investments of equal security.

(4) *The Present Rate of Conversion.*—The rate at which the old, almost useless, woods are being planted up with paying species is extremely slow. From the Agricultural Returns it appears that before the war the area planted annually in England and Wales was about 0·4 per cent. of the total area of woodland, and in Scotland 0·5 per cent. As much of this was replanting on land from which previous plantations have been cut, the conversion of old woodlands into up-to-date plantations must have been proceeding at an even slower rate than that indicated by these figures.

During the war there was an almost complete cessation of planting but very large areas were felled. Since the war forest activity has been renewed, and has been encouraged by grants from the Unemployment Fund. During 1921–22 this Fund assisted in preparation of ground for planting, or actually planting, over 6,000 acres in England and Wales and over 13,000 acres in Scotland (equivalent to about 0·32 per cent. and 1·5 per cent. of forest area respectively). In addition to this the Forestry Commission re-afforested 2,816 acres in England and Wales and planted 3,486 acres of new land in England and Wales and 4,189 acres in Scotland. In 1922–23 less planting was subsidised under the scheme for relief of unemployment owing to delay in the authorisation of the scheme, but it is probable that nearly as much land was actually planted. It may be assumed that Government grants were obtained for most of the planting done in 1921–22 and, if this is so, there has been very little actual increase in the rate of planting in England and Wales since the war, whereas the increase in Scotland is very considerable. Omitting Scotland, the rate of planting is still under 0·5 per cent. per annum of the total woodland area, despite the fact that the land felled during the war has not yet been restocked.

II. ECONOMIC PRINCIPLES AND METHODS.

(1) *Method of Estimating Profits.*—The belief that forestry is not a profitable investment is founded upon experience of the actual returns obtained from forestry as at present conducted. The contrary belief that under efficient management forestry would pay is founded on the returns that have been obtained from particular plantations, and calculations as to the measure in which these returns could have been improved by felling at a different age. These particular plantations are not especially advantageously situated either in respect of soil, climate or markets, but they have had to be segregated from the rest since clearly when it is desired to determine the pecuniary productivity of larch the accounts for larch woods must be separated from those for neighbouring oak coppice.

The simplest method of analysing the returns from forestry is to regard a single plantation as an isolated investment. The costs in making this plantation are of three kinds.

(*a*) The Cost or Rent of the Land.—If land is bought for the purpose of planting the purchase price *plus* costs of transfer are a part of the investment. It may also be necessary to clear scrub, drain the land or improve it in some other way: all this should be included in the cost of the land. If land is rented, the single payment at the beginning of the rotation is replaced by an annual rental. If a landowner plants land already in his possession, then he may charge to the plantation account the annual rental which he sacrifices by giving up the land to forestry. If the land was previously scrub or waste this value is actually nil, though there may be an initial cost for draining, etc.

(*b*) Cost of Planting.—This includes fencing, raising or buying plants, clearing land, planting and subsequent cleaning and filling up gaps. This cost varies with the size of the area, the nature of the ground and the efficiency of management, but £10 an acre is now regarded as a fair average for private planting. This is subject, however, to important deductions. A Government grant of £3 per acre can be obtained if a requisite proportion of unemployed labour is utilised; and if the owner puts the plantation under Schedule D for Income Tax purposes he can deduct the cost of the plantation from his income when paying Income Tax or Super Tax and thus save some 30 per cent.[1] of the remaining cost. Mr. Leslie Wood[2] calculates that when these reductions have been made the average net cost of planting is about £5 5*s*. per acre.

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[1] The rate of tax saved is the marginal rate paid by the landowner. On incomes between £2,000 and £2,500 it is 6*s*. in the £, between £2,500 and £3,000 it is 6*s*. 6*d*., between £3,000 and £4,000, 7*s*., and so on; thus the wealthier the owner the more inducement is given him to plant.

[2] *Journal of the Land Agents Society*, XXIII, p. 621. Sept. 1924.

(c) Subsequent Cost of Management.—It is difficult to assess this cost accurately, and on different estates it varies enormously. Under this head must be included salaries and wages for labour, except in so far as it is utilised for planting, thinning and felling. It may further include the cost of upkeep of a room or two in the estate office. Rates and tithes are sometimes also included, but in this case the plantation must be credited with shooting rents or other amenity values. Where neighbouring agricultural land is improved by the shelter afforded by the plantation the increased rent should also be credited to the plantation. In the writer's own calculations, 12*s.* per acre per annum has been adopted for cost of management, a figure which is intended, together with planting wages, etc., to cover the wages of one man per 100 acres at 30*s.* per week, as well as other fixed charges; but no deductions have been made for the value of shelter and other amenities. This amount is also subject to Income Tax and Super-Tax repayment if the plantation is put under Schedule D, and under these circumstances may be reduced to 8*s.* 6*d.* per acre per annum.

The income from the plantation comes from the sale of thinnings, and the final yield when the wood is felled. For the present it will be assumed that these are known from a money yield table, and the difficulties in forming such a table will be discussed later.

If the items of the costs and receipts and their time of incidence are known it is merely a problem in accountancy to estimate the return. In practically every case the receipts will greatly exceed the costs, but as they occur later than most of the costs, all values have to be discounted at compound interest. The mathematical difficulty of doing this has given rise to much confusion in methods of presenting accounts, and some standard method, which can be easily understood, is needed for comparative calculations. The method which is here adopted is one which involves considerable mathematical calculation, but it presents the final result in the clearest manner possible. It is simply to find out the rate of interest which, when applied at compound interest to all costs and receipts, makes the two sides of the account exactly balance at the end of the rotation. It may then be said that the investment has paid this rate of interest, or that this is the "yield" (in the stockbroker's sense) of the investment.

The answer is obtained by a graphical method which has been explained elsewhere[1] and it will serve present purposes sufficiently well to reproduce one of the graphs.

This graph is constructed from the money yield table given below which is based on the figure in British Yield Tables [1] for Quality II larch. The volume per acre standing in the wood after thinning at five-year intervals is shown in Column 2, and a fair price per cubic foot that might be obtained for timber of this size is shown in Column 4. Column 5 gives the price per acre, and the amount left if 30 per cent. is deducted from this to allow for rides, partial failure, etc., is shown in Column 6.

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[1] *Quarterly Journal of Forestry*, XIII, p. 156, 1919. This article, in spite of numerous misprints, is fairly intelligible.

MONEY YIELD TABLE FOR EUROPEAN LARCH, QUALITY II.

	Main Crop.					Thinnings.				Final Yield.
Year.	Cubic feet.		Price.	Value.	Value less 30%. £	Poles or c.f.	Size.	Price.	Value.	Value.
	Total.	Per Tree.	*d.*	£				*d.*	£	£
1	2	3	4	5	6	7	8	9	10	11
						Poles.	Ht.	Per Tree		
15	—	—	—	—	—	100	15	3	1·2	—
17	—	—	—	—	—	200	20	5	4·2	—
20	900	0·8	6	22·5	15·7	200	25	8	6·7	22·4
25	1,520	1·8	8	50·7	35·4	300	32	12	15·0	50·4
30	2,100	3·3	9½	83·1	58·1	210	40	14	12·2	70·3
						c. f.	c.f. per tree	per c. f.		
35	2,600	5·2	11	119·1	83·3	180	1·3	6	4·5	87·8
40	3,050	7·5	12	152·5	106·6	200	2·2	7	5·8	112
45	3,410	9·8	12½	178	124·5	220	3·7	8½	7·8	132
50	3,700	11·9	13	200	140	240	6·0	10	10·0	150
55	4,000	14·5	13½	225	157	250	7·2	11	11·5	168
60	4,250	17·7	14	248	173	260	7·4	11	11·9	185
65	4,510	21·5	14½	273	191	265	8·8	11½	12·7	204
70	4,760	25·0	15	298	208	260	13·0	12	13·0	221
75	4,960	28·3	15½	321	224	230	15·3	12½	12·0	236
80	5,170	31·3	16	345	241	180	18·0	13	9·7	251

In the same manner prices are given for thinnings, and finally the full price obtained if the wood is felled at the end of any five-year period when not only the main crop but the thinning for that year is realised. The prices shown in this table are not those realised in any actual wood but are intended to represent a fair average for present conditions; the return from thinnings, however, presupposes a moderately, though not exceptionally good market for fencing material and the like. In making the calculations for the graph the cost of planting has been estimated at £10 and the annual maintenance at 12*s.* per acre. Another graph (not reproduced) has been constructed to show the corresponding results when the deductions from costs mentioned above have been applied, so that the cost of planting is reduced to £5 5*s*. and the annual expenses to 8*s*. 6*d*. per acre.

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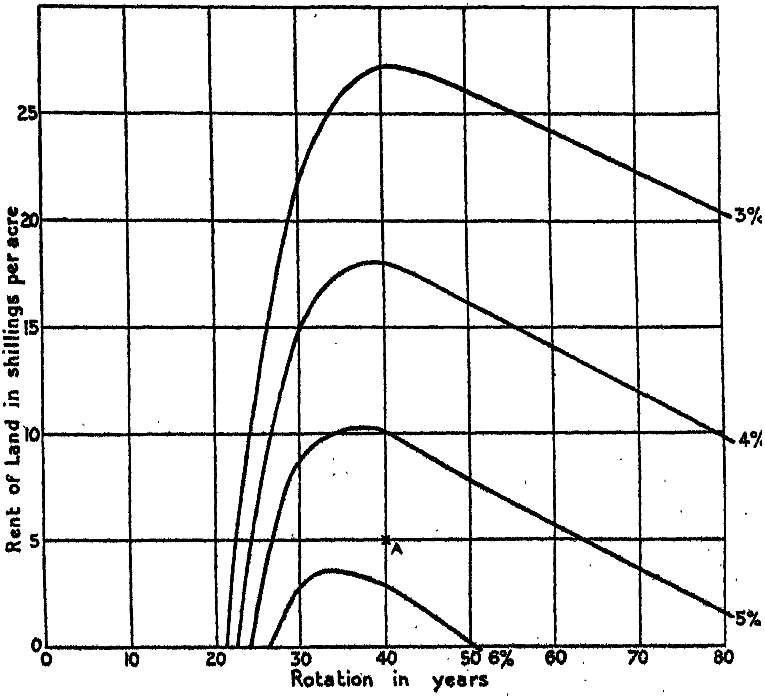
[1] *British Yield Tables.* H.M. Stationery Office, 1921, 1*s.*

The graph is read as follows. Suppose it is desired to find the financial yield when the rent of the land is 5*s*. per acre and the length of the rotation 40 years. The horizontal line corresponding to 5*s*. crosses the vertical line corresponding to 40 years at the point marked *A*. This point lies between the rate of interest curves for 5 per cent. and 6 per cent., and from its position is equivalent to a rate of about 5·6 per cent.; *i.e.*, the financial yield is about 5·6 per cent. If, on the other hand, the rent is 20*s*. per acre, then the rate of interest obtained is about 3·8 per cent.

Indicator Graph. Larch Quality II



The graph also shows the relation between the financial yield and the rotation. Thus, if the rent is 5*s*. the two are associated as in the following table :—

Length of rotation, years . . .	25	30	35	40	50	60	70	80
Financial yield, per cent.[1] . .	4·3	5·5	5·7	5·6	5·3	5·1	4·8	4·6
Financial yield, per cent., when reductions are allowed in cost of planting and annual expenses	6·8	7·7	7·8	7·5	7·2	6·9	6·5	5·9

In this case 35 years, as it gives the highest financial yield, is called the *financial rotation*, and it is clear that a loss is incurred by preserving the plantation after this time.

It should be clearly understood that the graph and the figures derived from it are only applicable to woods which obey the conditions, i.e., where second quality growth is obtained and where net prices correspond with those given in the table. It may be taken as an estimate of what may be obtained on an average where larch is grown on suitable soils; but where the larch is first quality higher returns may be expected. In places where small thinnings cannot be sold the rate of interest will be lower, but where there is a good demand for thinnings a higher rate of interest may be afforded by shorter rotations. In some parts of England thinnings at 15 years can be sold at 1*s*. a piece, and at 20 years all the wood may be marketed at 2*s*. a pole. Under such conditions about 10 per cent. (or, allowing for cost reductions 13 per cent.) may be realised on a rotation of 20 years, a rate of compound interest which is not likely to be bettered. It may be noted that if the market for thinnings is so poor that they yield no net income 5 per cent. may still be realised if the main crop can be sold for £88 at 35 years and if the deductions from costs are allowed.

The financial rotation will thus vary from place to place, even with the same species, and it can only be determined by careful thought and calculation. It is true, however, in general, that the financial object is best served by felling woods as soon as a reasonably good price is obtainable. Long rotations can never pay high rates of interest. The comparative economic merits of various species also varies according to situation, and it is the forester's business to select those species which will give the highest returns within the silvicultural limits set by soil and climate.

(2) *Why the Price of Large-sized Timber is not Higher.*—Since it pays better to produce timber in small sizes than in large it appears that the market prices of timber of different dimensions are not proportional to the costs of production. The reason for

[1] These yields are calculated on the supposition that the woods are assessed for Income Tax under Schedule B. In such circumstances the income is not taxed at its full value so that these yields are partially tax-free.

this is clear. Of the timber and timber products used in this country less than 6 per cent. is produced at home; the remainder is imported, and hence the market price is determined by the price at which timber can be purchased in other countries and shipped to our ports. Now most of this imported timber comes from uncultivated forest where the cost of production is nil. What determines price is stumpage dues, cost of extraction, sawing and freightage and these items come to very little more on large-sized timber than on small. All timber merchants agree that the average size of imported timber is now smaller than it used to be, and it appears that what may be called the "size-price gradient" of timber is settled almost entirely by the scarcity of large sizes. This is a factor that clearly bears no relation to the cost of production in England and it is not surprising that merchants are not prepared to pay adequately for home-grown large timber.

The same considerations apply to quality of timber. Much of the best imported coniferous timber has very narrow annual rings, i.e., it has been grown very slowly. Timber which is rapidly grown has broad rings and is generally (though not always) of inferior quality. Thus, much of the imported Douglas fir (Oregon pine) has 10 to 15 annual rings to the inch, whereas home-grown Douglas fir may have only 2 to 4 rings to the inch. The imported Douglas fir is considered to be one of the best softwoods; that grown here is, perhaps, inferior to Scots pine. And yet there is little doubt that it pays better to produce the low-grade timber than to attempt, by growing narrow-ringed timber on long rotations, to compete in the market for high-grade material.

It is probable that as the virgin forests of the world become exhausted the size-price gradient of timber will become steeper. For, even if timber subsequently imported is the product of "second growth" which has appeared spontaneously where old stands have been cut, the owners of this second growth will not be prepared to postpone felling in order to get larger sizes unless they can get an adequate return for such postponement. Nevertheless, it is possible to show that since transport, which plays a large part in the cost of imported timber, is approximately the same for large as for small sizes, the size-price gradient is never likely to become such that it will pay as well to produce large timber as small timber in Britain, except in districts which are far removed from markets.

III. FOREST FINANCE IN PRACTICE.

(1) When the mathematics involved in calculations have been mastered the theory of forest finance does not involve any particular difficulties. Calculations are made on the assumption

that certain money yield tables will approximately represent the returns that might be expected from growing particular species of trees on particular sites. When, however, these principles of forest finance that we have been considering are employed to settle practical questions it is by no means easy to determine what figures to put into the money yield tables on which the calculations are to be based.

For each species about which computations are to be made there are two difficulties. (1) What is likely to be the volume growth of the species on the sites under consideration? (2) What prices are likely to be obtainable in the future for the timber of this species at various sizes? It is impossible to deal with these questions fully in a brief article, but some indication will be offered of the lines along which their solution may be sought.

There are now fairly reliable British yield tables for those species of conifers which are most commonly grown in Britain. Three to five tables are given for each species, according to the "quality" of the site, showing the volume that has been found in fully-stocked woods of various ages and the thinnings that might be removed every five years. If, then, the quality class of a site for any species be known, the volume of timber that would be produced on it at any particular age can be roughly estimated. The determination of the quality class of a site is thus an important step in the preparation of any financial forecast.

The quality class of an existing plantation is most easily determined by comparing the mean height of the trees at their present age with the mean heights given for the same age in the yield tables. The quality class of the tables which shows a mean height nearest to that of the wood in question represents the quality class of the site for that species. It is quite possible that owing to improper management the volume per acre of the plantation may not be as high as that shown in the yield table, but it is to be expected that, if the number of trees per acre is approximately the same as that given in the table, the actual volume will not differ very greatly from the table volume.

The only reliable method of estimating the quality class of bare ground for any species is to determine the actual quality class of neighbouring plantations growing under similar conditions of soil and climate. Failing this, an experienced forester may make a rough guess from the nature of the site alone.

Future timber prices are much more difficult to determine. All that can be said is that prices have on the whole been rising during the last half-century and knowledge of the world's forest resources leads to the anticipation that the prices of softwoods must advance still further, though the extent of the advance cannot at present be estimated. Consequently, the usual practice is to assume that prices in the future will be the same as they are now and to admit that this probably involves an error on the side of conservatism. Allowance for loss through partial failures, and for rides which are not planted, is made by deducting 20 to 30 per cent. from estimated yields.

In estimating prices the conditions of the locality must be taken into account. Thus, distance from markets or from easy communications lowers the prices that will be given for standing timber. Nearness to collieries raises the prices of timber of pit-prop sizes, and proximity to towns affords a larger market for small thinnings (especially larch) than can otherwise be obtained. Money yield tables and the calculations based on them are thus only appropriate to particular woods, estates or districts.

(2) *Returns from Particular Species.*—Owing to the enormous variations from place to place in the nature of markets, the ease of extraction and the rent of land, no universally applicable generalisations can be made as to the profitableness of particular species, or the rotations on which they should be grown. On the whole it may be said that large timber of any description can be sold anywhere in England, but early thinnings can only be profitably disposed of near towns or in districts where they are widely used for agricultural fencing. Intermediate sized trees find their best market near collieries, and the price that can be obtained for pit-props varies inversely as the distance from the mines. Nearness to a railway station is also a factor which influences prices.

Where fencing material is used in large quantities there is little doubt that larch is the most profitable crop, and under especially favourable conditions 10 (13[1]) per cent. compound interest may be realised on very short rotations. In most places, however, the demand for fencing material can be met by thinnings alone, and then the main crop has to be grown on to timber or large pole size. Under such circumstances from 4 to 7 (6 to 9[1]) per cent. may be realised on land worth £5 per acre.

Where there is little sale for small sizes, Douglas fir is likely to be much more profitable than larch. The advantage of Douglas fir lies in the fact that it produces a large volume of timber very quickly and in 30 to 40 years the trees will, on suitable soils, have reached timber size. The technical qualities of home-grown Douglas have not yet been adequately tested, and there is little comparison between our broad-ringed, fast-grown timber and the narrow-ringed "Oregon pine" which is imported from the Pacific Slope. Very high prices, therefore, must not

[1] The figures in brackets are the rates estimated when deductions are made from costs for unemployment grants and income tax and super-tax remissions.

be expected, and in the writer's calculations the price of Douglas has been estimated at about 10 per cent. less than that of Scots pine of the same size, and about 40 per cent. less than larch. On this assumption it appears that first quality Douglas should yield more than 7 (9 [1]) per cent. and third quality about 5 (7 [1]) per cent. If, in planting, larch can be mixed with the Douglas and can subsequently be sold as thinnings, the financial yield should be considerably higher.

Compared with these species Scots pine cannot be regarded as a profitable tree. Even if first quality Scots pine land can be obtained for £2 per acre and if the timber at 70 years can be sold for *9d.* per cubic foot, the financial yield can scarcely exceed 2½ (3 [1]) per cent. To plant Scots pine on poor heath land where its rate of growth is only third or fourth quality is a form of extravagance that only the very wealthy or the very altruistic can afford. For this reason the belief that forestry can only pay on very poor land is entirely erroneous. Land which is cheap owing to its poor agricultural quality may be good forest land and such sites are the first that we should plant; but land that is also poor silviculturally, especially land that will only grow Scots pine, can scarcely ever give a satisfactory return from planting. Calculations have shown that it is generally more profitable to plant larch on a first quality site the rent of which is *20s.* per acre than on a fourth quality site costing nothing.

It has been found that on many poor heath lands Corsican pine will grow as healthily as Scots pine and very much faster. If the timber of Corsican pine can be sold for the same price as Scots it appears possible to make 4 (5 [1]) per cent. even on second quality sites. Thus in the afforestation of poor heath soils Corsican pine is likely to take a very prominent part.

Of other conifers spruce is more profitable than Scots pine, but suffers in the same way from the unsaleability of small thinnings. It provides the best timber for converting into wood pulp and is consequently favoured in regions which have developed a paper-making industry. As Sitka spruce produces timber which is at least as good as Norway spruce and grows very much faster, it is likely to replace the latter species wherever the rainfall is sufficiently high; but about Sitka spruce and other fast-growing American species there are, as yet, insufficient data for financial computations.

Reliable yield tables for broad-leaved species have not yet been made for Britain, and it is impossible to assess their productiveness. There is little doubt that on the whole they are less profitable than conifers and it appears that, apart from exceptional crops such as chestnut coppice, ash and poplar are the only species which provide adequate returns. Oak and beech seldom pay more than 2 per cent. and their cultivation can rarely be defended on purely economic grounds. Both these species, however, improve the soil they are growing on and for this reason, and because of their great beauty, they will continue to be cultivated, though less widely than at present.

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[1] See footnote on p. 103.

IV. FUTURE POLICY.

In the foregoing remarks the endeavour has been made to clear up some of the difficulties which surround the subject of forest finance. These difficulties have been sufficient to make most discussions on the subject very confused, and, as a result, few landowners have any clear understanding of the financial returns that they are receiving, or might receive, from their forests. The industry of forestry is generally conducted with less business acumen than any other industry in the country, and if any grocer used the business methods of most foresters in the management of his shop his enterprise could only end in bankruptcy.

Mistakes in management are so numerous and so widespread that it is worth while to sum them up and discuss them.

(1) *Wrong Species.* The first fault to find with English forests is that too much of the ground is covered with broad-leaved species although it has been repeatedly shown that conifers pay better. It is true that most new plantations include conifers but, even so, it is not uncommon to find Scots pine planted where much more profitable conifers, such as larch, Douglas, or, at any rate, Corsican pine, would grow.

(2) *Wrong Rotations.*—On most estates trees are grown on too long a rotation. Any estate which contains large areas covered with big-sized timber is managed on uneconomic financial lines, and it may be assumed that the policy of the owner is governed by æsthetic rather than economic considerations, or by ignorance. Much of this trouble is due to a traditional, but totally unscientific use of the word "mature." There is a tradition that woods should not be cut till they are "mature," and yet there is no clear idea as to what maturity means. In different connections a tree is said to be mature when it bears fertile seed, when it has reached the limit of height growth, or when its bole has acquired a certain diameter; but unless it is desired to reproduce woods by natural regeneration none of these connotations has any clear relation to the industry of forestry. The only sense in which the word "maturity" expresses anything vital to forest management in England is that of "financial maturity," or the time when woodlands will give the highest return to their owner. In this sense a wood may be mature when it is twenty years old or when it is fifty;

but the age at which it becomes financially mature can never be determined by looking at it; it can only be known after careful calculations.

(3) *Unproductive Capital.*—This is of three kinds. The capital contained in a plantation that has passed financial maturity is less productive than it might be. It would be better to cut such woods and lay out the proceeds on planting more woods. But these plantations, though they are not producing as high a rate of interest as they might be, are at any rate growing. What is far worse is that a considerable portion of our woodland, say about a quarter, is scarcely producing anything of value at all. In most coppice, and coppice with standards, the underwood is of so little value that it is scarcely worth cutting, and the increment of the short-boled standards is little more than firewood. Much, again, of the older "high-forest" has long ago been bereft of all its best trees and the quality of those that remain will never improve. The third kind of unproductive capital is the land that has been cleared or reduced to scrub, on which additional capital will have to be spent before it becomes productive.

This wasting capital is nevertheless the hope of English forestry. There are hundreds of thousands of acres of old degraded forest the timber on which is very poor, but is nevertheless saleable. There may be only 200 or 300 cubic feet of oak to the acre, but it can be sold for a shilling a foot standing, and this, under present circumstances, will produce just enough to pay for clearing and planting, if economically carried out. Some of this class of woodland will fetch £40 to £50 per acre, in which case the sale of it would produce sufficient capital to plant four [1] acres for every acre felled, so that by wise realisation much land that is at present unproductive might be rendered valuable.

The reiterated statement that landowners are too poor to plant is only true in a very few cases—only where the woods have been so atrociously abused in the past that the timber left standing on them is worth nothing at all. On most estates the judicious realisation of the standing timber will produce sufficient capital to plant up the woodlands and make them really productive.

(4) *Lack of Economy in Management.*—This fault is not nearly so universal as the others that have been discussed as there are many practical foresters who are very clever in getting work done well and economically. Nevertheless, any examination into estate accounts discloses surprising inequalities in the incidence of costs. It is frequently found that on one estate plant-

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[1] Or up to ten acres if unemployment grant is obtained and new plantations are put under Schedule D.

ing costs double what it does on a neighbouring and similarly situated estate; and even where the cost per acre works out at about the same, one estate fences much more cheaply than another but spends more on plants, and so on. The only way to prevent waste of this kind is to keep accounts in such a manner that costings can be worked out, and uneconomic practices improved.

There is another kind of waste that comes from ignorance, as when larch woods, planted close at great expense, are allowed to remain unthinned till they are eighteen or twenty years old, when, through overcrowding, they have become useless.

Economy in management does not necessarily mean low costs. It may necessitate larger bills for wages and machinery, and it may be necessary to fell some older woods in order to raise the money. What it does mean is that money should be spent to the best advantage so that the woods may be producing wealth in the most efficient manner.

(5) *Lack of Enterprise in Utilisation.*—There are well known channels through which large timber can be sold, and it may be inadvisable for any but those with considerable experience of the timber market to attempt to convert their own produce. In the sale of small sizes, however, such as coniferous thinnings, there is unlimited scope for an enterprising salesman, and, since the profits of forestry depend so largely on the markets that can be found for thinnings, this part of the forester's work is one which should not be neglected Also, high prices can often be obtained for special classes of timber, such as ash, sycamore and even crab apple if the right markets are discovered, and an expert salesman should know where to find such markets.

These criticisms may be summed up by saying that what is wanted in English estate forestry is business management. In order to get good business management we need to have keen-minded, thoroughly trained managing directors in charge of woods. We have seen that on the whole our woodlands yield a miserable return at present, but that if well managed they could in most cases yield from 5 to 10 per cent. The total capital value of English woodlands must be between 50 and 100 million pounds and an increase in financial yield of, say, 3 per cent. would represent an annual return of from 1·5 to 3 millions. Some fraction of this needs to be made available for attracting suitably equipped men into the profession of estate forest management.

If such men were trained, what sort of positions could they hold? And what could they do if they obtained them?

A forester manager, if an active man, and supported by good working foresters, should be able to manage from 3,000 to 5,000 acres of woodland. If the woods are near a town so that very intensive forms of management are justified, rather less than

3,000 acres would be enough to occupy him; if the woods are very remote, in places where only comparatively large timber can be sold, it is possible that he might efficiently look after more than 5,000 acres. If we assume that a forest manager would require a salary rising to £1,000 a year, such a salary spread over 5,000 acres represents an annual charge per acre per annum of 4*s*., which is not excessive. But if it had to be borne by less than 3,000 acres, the outlay would be more difficult to justify. Now there are only sixteen estates in England and Wales which comprise more than 3,000 acres of woodland and these only make up about 5 per cent. of the total area of woodland. We are thus confronted with the problem of how efficient management is to be paid for on the remaining 95 per cent. of woodlands.

There are two broad alternatives: either small estates must adopt some form of combination, uniting to form a syndicate or letting their woods to some central company: or else the woods must be managed by the State. Judging by recent letters to *The Times*, there appear to be landowners who, though repudiating any general belief in Socialism, believe that State management is the only way out of the difficulty; and the ease with which the Forestry Commission can acquire land for planting shows that this method is bound to be adopted more and more so long as the State is ready to advance the necessary funds. And yet there are reasons for thinking that better results might be achieved if neighbouring landowners would agree to manage their woods collectively.

The other question has also to be faced. If one of these highly-trained forest managers were appointed, either to a single large estate or to a group of small ones, how would he proceed to justify his appointment? The actual procedure must necessarily depend on the nature of the woodlands which are submitted to his charge, but on most estates I think his first duty would be to assess capital values and determine the productivity of the capital in each compartment; then to find the best markets for his produce and work out the best methods of utilisation; next to decide on the best species to grow and determine their financial rotations, and finally to carry out a scheme of felling and planting on the largest practicable scale.

As most woodlands are managed to-day, nobody who has the training has also the time to take large views. The forester is busy with the daily routine of work, the agent has too many other things to look after, and where estate woodlands are well managed it is generally because an exceptional owner takes them up as his hobby and gives up most of his time to being his own woods manager.

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THE MILLER'S MARGIN.

A STUDY OF PRICES OF WHEAT, FLOUR AND OFFALS.

In the criticism of retail prices of farm products or of prices at any stage subsequent to leaving the farm which has been fairly common during the last three years, the feeling of mystification and the lack of information in the critics has been evident. They were not to blame for their lack of information, for little was available; and the measure of their information was not necessarily a measure of the justification of their criticism. Persons interested in the production or distribution of any commodity are necessarily interested in costs and prices in stages other than those in which they are personally and immediately concerned. The prices which the consuming public are willing to pay for any commodity are not entirely determined by costs of production and distribution, they are partly determined by the strength of the demand. The strength of the demand itself is partly determined by the price. Hence the interests of the groups concerned with production and distribution are not always identical. The retailer may maintain a comparatively high price, restrict demand and his own turnover of goods, and yet make as large a profit, even if not larger, as he would by reducing prices and increasing turnover of goods. But when primary or wholesale markets are weak because of heavy supplies, such action unduly depresses the producer's price. Similarly the position of wholesalers or manufacturers may be weakened, especially if their profits depend upon the maintenance of a high turnover. But in any case, there is some conflict of interest between the different groups of producers and distributors concerned whenever the consumers will not take the whole of the supply at a price which covers all the costs incurred and profits considered necessary at every stage of the process of making and delivering the goods, and it is desirable that any of the groups concerned should be enabled to ascertain the margin of costs and profits retained by any of the other groups. Lack of information is often a cause of feeling of injustice which is ill-founded, but the spread of real information rarely leads to unjust criticism. It is partial information or the feeling of a baffled intelligence which is the most common origin of discontent.

Farmers have commonly thought that when cereal prices fall there is not a corresponding fall in the prices of flour and bread. This may or may not be justified, but in view of the importance attached to grain prices by many farmers and the importance of the price of bread to many consumers, especially farm workers, it would be beneficial if a method of measuring the margins between flour and wheat prices and bread and flour prices could indicate relative changes in prices and some of their causes. It is known, for instance, that in the last great depression in the cereal market, that of the beginning of this century, wheat prices fell to an almost unknown level, but the comparative fall in bread prices was small. In the years 1871 to 1876 the average price of English wheat was 53*s*. 3*d*. per quarter, the average price of "Town Whites" flour 44*s*. 8*d*. per sack, while bread was 8*d*. per quartern. In the period of lowest prices, 1901 to 1906, the average price of English wheat was 27*s*. 6*d*. per quarter while "Town Whites" flour was selling at 29*s*. 6*d*. per sack and bread was nearly 5½*d*. (5·4*d*.) per quartern loaf. That is to say, that while wheat had fallen in price some 48 per cent., the price of bread had only fallen 22·5 per cent. To some farmers it appears that a similar position has arisen since 1920. In that year the average price per quarter of English wheat was 80*s*. 10*d*., while the average price of flour was 62*s*. per sack and the average price of bread was 12·2*d*. per loaf. In 1923 the average price of wheat was 42*s*. 2*d*. per quarter, while the price of flour was 37*s*. 10*d*. per sack and the average price of bread nearly 9*d*. per loaf (8·8*d*.), thus in these three years the price of wheat fell 48 per cent., that of flour only 39 per cent., and that of bread 38 per cent.

Crude comparisons of this kind lead only to limited conclusions, and it is necessary to obtain more information. But the processes of milling and baking are complicated and variable, showing varying results in yield of flour and bread and varying costs. This subject was studied by the Linlithgow Committee and some results were obtained.[1] As regards milling, the Committee published figures showing that for twenty-eight firms the total margin of costs and profits of millers in 1922 amounted to 9*s*. per sack; and for eighteen firms the margin amounted to 4*s*. 2*d*. per sack in 1913 and to 7*s*. 7*d*. per sack in 1922. The Committee, however, did not show any method by which an estimate of the margin may be continuously made, except by returns from millers. This method was not a conspicuous success, even in the case of the Linlithgow Committee itself, and for general purposes it is impracticable. Consequently an attempt has been made to obtain a more general method, which is shown below.

Professor Bowley has stated that "prior to the war the average price of a sack of flour of 280 lb. equalled four-fiths (more exactly 0·794) of a quarter of wheat" computed on the basis of five parts of Manitoba to one quarter of English. "The four-fifths of a quarter of wheat, in fact, yielded approximately a sack of flour. The miller then obtained throughout the value of the offals, and increased his profit in whatever proportion that increased," and Professor Bowley has published figures showing close correlation between the value of four-fifths of a quarter of wheat and the price of a sack of flour during the years 1914, 1915 and 1916.[1] As the flour yield taken for Professor Bowley's estimate is 72 per cent. of the wheat, the weight of the quarter of wheat combined on a basis of five parts Manitoba and one English would be 493 lb. [2] of which four-fifths would be 394·4 lb., which at 72 per cent. yield would give 284 lb. of flour, or just over one sack. However, this estimate makes no allowance for wastage, and with necessary cleaning the estimate is an approximately accurate one.

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[1] Report on Cereals, Flour and Bread. Cmd. 1923.

But since farmers have become used to the quotation of the price of wheat per cwt. it is somewhat easier to show a simple comparison of the prices of wheat and flour. Three and a half cwt. of wheat at a flour yield of 71·5 per cent. give almost exactly one sack of flour. The remaining 28·5 per cent. of offals yields exactly one cwt. This is a somewhat fairer method than appears at first sight, especially when hard and dry wheat is taken as the greater part of the grist from which the flour is made. There may be some loss due to cleaning, or other wastage in the process of milling, but these losses are very largely determined by the varieties of wheat used. In the case of the wheats included in the comparison the net loss will not be likely to exceed 1 per cent. of the gross weight of the grain in the sacks, for although a certain amount of other seeds are taken out in the process of cleaning, these are mostly included with the offals at a later stage.

In small mills: "Impurities and foreign seeds other than wheat extracted during the treatment upon the dry cleaning plant mainly can be disposed of with comparative ease and only moderate risk of loss." Many large mills "use the high speed metal grinders now on the market, reducing to a meal the majority of the seeds and sending them on to mix with the offals. This is quite legitimate, as the seeds mostly make good feeding stuffs, many indeed being partly composed of broken wheat with the exception of a few of the worst types of cockle-seeds which are of a poisonous nature." "Good barley and oats are often well washed and sold whole, barley especially responding well to that treatment. As a rule, however, all other seeds, screenings, chaff and light 'beeswing' from conditioners are ground up, as already described."[3]

The proportion of impurities taken out in the cleaning process varies very much. It is generally greatest in some of the varieties of Indian wheats, but it is also high in the case of River Plate varieties.[1] In the case of wheats from Eastern countries, the proportion of impurities lost to the miller is often very high because they include stones and dirt, but where only other grains and seeds are present little real loss is incurred because seeds can be ground and included with the offals, and other grains can be used in the same way or prepared and sold separately.

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[1] Professor Bowley's first study can be seen in the *Economic Journal*, 1913, "Wholesale and Retail Prices of Food." The latter in *Prices and Wages*, 1914–1920 (Milford) Ch. V.

[2] English 480 lb. per Imperial quarter; Manitoba 496 lb. per quarter.

[3] P. A. Amos, *Processes of Flour Manufacture*, p. 125.

In the case of the varieties used in the Table below, the proportion of impurities in the gross weight of grain is small. For Number 1 Manitoba it averages only about 2 per cent., and consists of oats, spelt, and cockle seeds. For English generally it is again about 2 per cent., and consists mostly of chaff and seeds.

In the case of the mixture used in the Table, the qualities of the grain are approximately as follows :—[2]

	No. 1 Manitoba	English
Average moisture content (per cent.) . .	11	15
Average weight per bushel (lbs.) . . .	62	62
Proportion of impurities (per cent.) . .	2	2
Average flour yield	70	69

As the weights are taken per 112 lb., and not by the bushel, the weights need not be considered, but the average moisture content of the mixture would be 11·66 per cent. The average of impurities is only 2 per cent., and most of these will go into the offals. The whole mixture will probably gain a little moisture in conditioning, and the net loss, if any, will be very small. Few flours contain less than 12 per cent. of moisture, while poor ones contain as much as 15 per cent. Even superfine flours contain 12 per cent., sometimes 12·5 per cent. of moisture, the average is probably round 13·5 per cent. But supposing that in the mixture used for the Table, the proportion of impurities is 2 per cent. or 7·84 lb. on 392 lb., and one-third of this is entirely lost, and that the gain in moisture is nearly 1 per cent. (0·9) and the average moisture content of flour 12·5 per cent., then 3·53 lb. is gained in moisture and there is no net loss, the gain in moisture being greater than the loss in impurities. However, there may be other loss in milling, for some accumulations of dust, &c., cannot be included with the offals. This net loss on gross weight of grain as it goes into the mill will not generally exceed 1 per cent. of the total, thus the loss will be less than 4 lb. and this will be in the offals.

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[1] Also some years ago in Egyptian varieties, but no Egyptian wheats are now used.

[2] The moisture contents of different wheats will vary to some extent from month to month, and millers will vary prices offered according to their estimates or analyses of moisture content. Unfortunately, it has not been possible to trace any monthly analyses of moisture contents in different years which provides adequate information on monthly variations; these figures represent, as nearly as can be ascertained, the annual average moisture content. But readers interested may consult P. A. Amos's *Processes of Modern Flour Milling* (Longmans, 1912) or other authorities.

In 1911–13 4 lb. of offals would be worth about 2½*d.*, and in 1922 about 3½*d.*, and if the loss has to be allowed for in the Table it can be taken off the figure for the margin in these proportions. On the other hand, if moisture content of flour reaches 13·5 per cent. there may not be any net loss.

The yield of flour is sometimes calculated on the gross weight of wheat as it goes into the mill, sometimes on the net weight of wheat as it begins the reduction process, after cleaning and conditioning. In the former case, the percentage yield may be somewhat lower than in the latter case, although it is not necessarily lower because of possible increase in moisture during the process of conditioning. But taking the loss off the offals makes the proportion of the flour yield to the net weight of grain higher than is stated, and instead of being 71·5 per cent. of the gross weight it will be 72·2 per cent. of the net weight of wheat milled (392 lb. − 7·84 lb. impurities + 3·53 lb. (0·9 per cent.) water gained = 387·7 lb. net weight of wheat milled:

$$\frac{280 \text{ flour}}{387{\cdot}7 \text{ wheat}} = 72{\cdot}2 \text{ flour yield}).$$

The average flour yield of the mixture, as given for 1912, was approximately 70 per cent. of the gross weight of grain, but the higher proportions have been taken to represent, as they appear to do, the present capacity for the mills for obtaining a higher flour yield.

In making such a comparison as is given below the greatest difficulty is presented by the selection and collection of prices. There are many varieties of wheats, both home grown and imported. There are many grades or qualities of flour. Leaving out of consideration the varieties of wheats, and taking them only in their characters of quality from the miller's and the baker's point of view, there are "strong," "medium," and "weak" wheats and blended with these natural qualities are other conditions which arise in production or in transport which are important to the miller. Amongst these are moisture content and the proportions of impurities, together with general cleanliness. There are many possible blends of wheat for the different grists for flour making. There may even be several blends of wheats at different periods for making one grade or quality of flour. The blending which is necessary not only affects the miller as regards the prices of raw materials and costs of manufacturing, but also the baker in regard to the yield of bread in number of loaves per sack and also in quality of bread. According to the sources of supply of wheats at any given time, and also to the prices at which supplies can be purchased, typical blends may contain strong and medium wheats from North America, with English. At other times or under other circumstances the blends may be of North American, River Plate, or Australian with English. Or again, Indian wheat with Australian, River Plate or English may be used together with a small proportion of North American. The strong wheats from North America form a smaller or larger proportion of most blends, but the blending of all varieties of wheats from all the commercial sources presents a very great number of possible combinations. The bearing of the blending of wheats on future comparisons of prices will be dealt with later, but at present it is sufficient to say that the combination used for the present comparison would yield a flour of very high quality from the baker's point of view, and would enable the miller to obtain a high net yield of flour from the grain which is milled.

Prices of flour vary according to quality as determined by strength, whiteness, moisture content, and the general appearance and flavour of the bread which can be made from different grades or qualities. For English-made varieties many prices are quoted. To bakers, prices are quoted for "Town Made Whites" and "Town Made Straights" and "All English Country made," and also blends ready for baking. The baker may buy definite grades and blend himself, or buy blended flours. He may buy mostly blended flours with a small proportion of special high-grade flours for the first processes of dough-making. But the baker may buy not only English-made flours, but also imported foreign-made varieties, especially American. The prices given in the comparison for 1922 and 1923 are those of "Straights," for the years of control, the price of "G.R." is given, and in other years an approximation to "Straights" has been obtained. In cases where no other figure has been available that for "Town Whites" has been used. In any future comparison the difficulty of compiling prices may be diminished by determining the qualities or varieties which are to be used and compiling prices from current quotations.

But in addition to the necessity of determining the varieties of flours to be taken, another difficulty arises in that quotations are made for delivery under different conditions. Flour may be delivered to the baker's premises, to his station, or ex-mill. It may be sold for cash or on credit. It is also sold to factors at a lower price than to bakers. Generally the price to bakers, either ex-mill or as delivered to premises, should be taken; even then it is necessary to distinguish between the quoted price, which is somewhat of a conventional figure, and the actual "taking price." The former represents more or less credit transactions, the latter cash or quite short credit transactions on the basis of keen buying. The prices used represent those including delivery, and while both quoted and taking prices are given, calculations are made on the basis of the mean of the two figures.

As regards offals, the prices are for Bran and Middlings. The yield is taken as approximately 50 per cent. of each, and the combined price accordingly. If any other distribution of the yield is adopted to represent the actual yield, the combined price will change very little. Prices of the two commodities show comparatively little difference and the distribution will not vary very much from 56 to 56 lb. in the hundredweight.

The margins as thus shown only indicate roughly the margin of gross profit, and do not at all indicate the net profit or loss. They generally include the cost of transport of wheat to the mills, of flour from mills to bakery, but not of offals from the mill, for these are usually sold ex-mill. The net profit or loss could be determined only by examination of miller's costs, and for these there is little information available. The statement of costs in the Report on Cereals by the Linlithgow Committee may, however, be seen.[1]

The margin shown in the Table is taken as the plus or minus difference between the price of the combined wheats and the mean price of flour, plus the value of the offals. Thus where the mean price of flour is higher than the value of wheat the difference is added to the value of offals, but where the mean price of flour is lower than the value of the wheat the difference is deducted from the value of the offals. If a deduction for net loss of 1 per cent. of grain in milling is allowed[2] the value of about 4 lb. of offals has to be deducted from the margin.

It is interesting to compare the results here shown with those obtained by the Linlithgow Committee. For the year 1922, the margin shown is 7*s*. 3*d*. per sack while the Committee found that eighteen firms making a small net loss in that year had a gross margin of 7*s*. 7*d*., and that twenty-eight firms which on the average made a small net profit had a gross margin of 9*s*. per sack. These twenty-eight firms shown as making a small net profit included the eighteen which showed a small net loss, consequently the profit of the ten firms which actually made profits had profits much greater than those shown. The statement for twenty-eight firms also included the results for one very large firm having exceedingly heavy expenses of delivery, which extended their margin. The results of this firm tended to throw out of balance the whole of the statement for twenty-eight firms. Consequently the results for eighteen firms are probably the more representative. One cause of difference in margin is probably that of taking too high a proportion of a high-

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[1] Cmd. 1971, 1923, pp. 40–41.

[2] See page 113 *supra*.

Year or Month	WHEAT								FLOUR						Difference between "Mean Price" per sack and value of 3½ cwt. of Wheat (Plus or Minus)		OFFALS						Total of Miller's Margin per sack of Flour as per 3½ cwt. of Wheat	
	British per cwt.		No. 1 Manitoba per cwt.		Combined Price 5 Manitoba 1 British per cwt.		Value of 3½ cwt.		Quoted Prices per sack		Taking Price per sack		Mean Price per sack				British Bran per cwt.		British Middlings per cwt.		Average Value of Offals per cwt.			
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
1911–13	7	7	8	6	8	4	29	2	30	6	30	0	30	3	+ 1	1	5	1	6	7	5	10	6	11
1914 .	8	2	9	4	9	1	31	10	33	0	31	3	32	1	+	3	5	2	6	10	6	0	6	3
1915 .	12	4	14	1	13	9	48	2	49	0	46	11	48	0	—	2	6	10	9	6	8	2	8	0
1916 .	13	8	15	10	15	5	54	0	52	11	51	11	52	5	— 1	7	8	10	12	3	10	7	9	0
1917 .	17	8	19	2	18	11	66	3	58	6	56	1	57	4	— 8	11	13	1	14	7	13	10	4	11
1918 .	17	0	18	8	18	5	64	6	46	9	44	2	45	6	— 19	0	13	2	13	4	13	3	5	9
1919 .	17	0	17	2	17	1	59	10	46	9	44	2	45	6	— 14	4	12	3	13	9	13	0	1	4
1920 .	18	10	22	1	21	6	75	3	66	0	62	1	64	1	— 11	2	13	8	14	8	14	2	3	0
1921 .	16	8	19	2	18	9	65	8	64	6	62	8	63	7	— 2	1	9	8	11	5	10	7	8	6
1922 .	11	2	13	6	13	1	45	10	45	5	44	5	44	11	—	11	7	6	8	9	8	2	7	3
1923 .	9	10	11	6	11	3	39	5	39	5	37	10	38	8	—	9	6	10	8	2	7	6	6	9

priced wheat like No. 1 North Manitoba for the quality of flour for which the price is taken, but it may also be due partly to selling some of the by-products of milling at a higher price than the flour, and to selling small proportions of the offals at prices higher than those used in the estimate.

For 1913 the Committee had the costs and profits of eighteen firms only, and these showed a gross margin of 4*s.* 2*d.* The average margin for 1911–13 shown in the Table is 6*s.* 11*d.*, but this covers three years instead of one. Taking the figures for 1913 only the margin would be much smaller. The average price of 3½ cwt. of the combined wheat for the year was 29*s.* 6*d.*, while the price of flour was 27*s.* 11*d.* The mean price of offals was about 6*s.*, so that with a deduction of 1*s.* 7*d.* for the difference between wheat and flour prices, the margin would be 4*s.* 5*d.* as compared with the 4*s.* 2¼*d.* reported to the Linlithgow Committee. Again the difference is not great. The year 1913 was one which gave millers comparatively poor results, and cannot be taken as entirely representative of the pre-war period.

No great importance should be attached to the figures for the margin in the years 1918–19, for mills were under control during the whole of these years, as in part of 1917 and part of 1920. The figures merely indicate the loss in addition to the cost of transport and milling, with the prices as fixed, had the yield of flour remained as in 1913. But by 1917, the extraction had reached 76 per cent., and was much higher at later dates. For some varieties of wheat the required extraction reached even 90 per cent. Also considerable quantities of various diluents were used in the grist.

On the whole, and as far as can be ascertained, the margins shown appear to be reasonably accurate, but difficulties of compilation of prices have been encountered which would not arise if continuous comparison were maintained and prices compiled at short intervals.

In any future comparisons it is probable that instead of taking the price of one high-quality wheat, which although it may enter into many or most blends cannot be generally used in the proportions here given, it would be advisable to take the " declared value " of all imported wheat month by month, but an attempt might be made to obtain the prices for representative wheats as delivered at the mills. In this case the combination of wheats and the yields of flour and offals would have to be changed to some extent. The combination in England and Wales would then be approximately in the proportions of 5 or 6 imported to 1 British. For Scotland the proportions would probably be either 9 imported to 1 British or 19 imported to 1 British, corresponding to percentages of foreign wheat used varying from 90 to 95 per cent. The following figures give some indication of the qualifications in yield of flour and offals which would be necessary.[1]

	British Wheat	Imported Strong Wheat	Imported Medium Wheat	Imported Weak Wheat
Average :				
Moisture Content (per cent.)	15	11·6	10·3	11·5
Impurities (per cent.)	2	3·4	4·4	4·4
Weight of bushel (lbs.)	61·6	61	61	60·6
Flour Yield (per cent.)	68·6	69	68·3	68·3
Range :				
Moisture Content (per cent.)	13–16	10–14	8–14	9–14
Impurities (per cent.)	0·5–3·5	2–5	2–8	2–8
Weight of bushel (lbs.)	61–62	59–62	58–62	58–62
Flour Yield (per cent.)	68–70	67–71	63–75	63–72

The yields here given are on the gross weight of grain received in the mill, and make allowance for the impurities. But as these figures were taken some years ago, it is probable that the improvements in the process of conditioning, and in the processes of reduction, have tended to increase the yield of flour. It would be fair to take a yield of at least 71·4 per cent. on a mixture of 5 or 6 imported to 1 English, for the moisture content of the whole grist would be only 12 per cent., and the mixture would gain enough weight in conditioning to make up for the loss of one-third of the impurities. In this case the yield of flour would be almost exactly one sack, and that of offals one cwt.; but if an allowance of 1 per cent. were made for net unavoidable loss in weight the value of about 4 lb. of offals would have to be taken from the column showing the final margin.

For flour prices it would be advisable to take the prices of " Straights " at several centres, and to include only those which include costs of delivery. It would probably be necessary to compile both the " quoted " and the " taking " prices, and take the mean or some proportions of each as may be determined.

By this method it appears that a fair comparison of the prices of wheat and flour can be obtained. The margin computed on this basis would again include transport charges, and would only indicate the gross profit of the miller. But short of periodical examination of miller's costs and profits this appears to be the only way of obtaining a fairly simple and approximately accurate record of the expansion and contraction of the miller's margin.

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[1] Again it must be stated that moisture content may vary from month to month. Also, the moisture content and the flour yield of individual varieties of " hard," " medium " or " weak " wheats may show considerable variations from these averages. These individual conditions and qualities are well known to many, if not all, modern millers, but it is difficult to obtain any adequate quantitative statements of them. This Table of averages has been compiled after careful consideration of all the information available and it is believed that it fairly represents the *annual average* for each class. It may not, however, represent the average for each class in any particular month, for wheats of the three classes are obtained from different geographical sources at various times of the year.

By using the "declared value" of all imported wheats in the years 1911–13 and 1921–23 examples of the margins are shown below by the same method as in the main Table. But during these years there were considerable changes in the proportions of imports from various sources which are shown in this summary.

PROPORTIONS OF WHEAT IMPORTED FROM VARIOUS SOURCES.

	1911–13 Per cent.	1921 Per cent.	1922 Per cent.	1923 Per cent.	1921–23 Per cent.
Russia	10	—	—	—	—[1]
U.S.A.	21	45	39	32	38
Argentine	15	5	19	21	16
British East Indies . .	21	3	0·5	12	6
Australia	12	25	17	5	15
Canada	18	18	24	28	23
Other Countries . . .	3	4	0·5	2	2
Total . . .	100	100	100	100	100

On the whole the changes in the sources of supply indicate an improvement in the quality and cleanliness of the imported wheats.

The estimate of the margins assumes a yield of 71·4 per cent. of flour from a grist composed of five parts imported and one part English. The average moisture content of the imported wheat would be about 11·2 per cent., that of the English 15–16 per cent., with an average moisture content of the grist of about 12 per cent. This would probably be increased in the process of conditioning by 1 to 1½ per cent. The average impurities in the whole grist would be about 3·75 per cent., and of these one-third would be lost. Thus the loss of impurities would be 1·25 per cent., or 4·9 lb. on 3½ cwt. This loss would be approximately balanced by a gain in moisture, but in any case the net loss or gain in weight due to loss of impurities which cannot be used in the offals, or gain in moisture, would be very small. It may be taken as fairly certain that the yield of 3½ cwt. of such a grist would be almost exactly a sack of flour and one cwt. of offals. The results are as follows :—

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[1] Included with Other Countries.

ESTIMATED MARGIN ON BASIS OF "DECLARED VALUE" OF IMPORTED WHEAT.

	1911–13		1921		1922		1923	
	s.	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*
Wheat :								
British, per cwt.	7	7	16	8	11	2	9	10
Imported, ,, ...	8	2¾	17	3½	12	2½	10	8
Combined (5 imported 1 British) per cwt.	8	1½	17	2¼	12	0½	10	4¾
Ditto, 3½ cwt.	28	5¼	60	1¾	42	1¾	36	4½
Flour :								
Quoted price per sack . . .	30	6	64	6	45	5	39	5
Taking price per sack . . .	30	0	62	8	44	5	37	10
Mean price per sack	30	3	63	7	44	11	38	7½
Difference between mean price per sack and 3½ cwt., wheat . . .	+ 1	9¾	+ 3	5¼	+ 2	9¼	+ 2	3
Offals :								
British Bran, per cwt. .	5	1	9	8	7	6	6	10
British Middlings, ,, . .	6	7	11	5	8	9	8	2
Average value of Offals, per cwt.	5	10	10	7	8	1½	7	6
Margin :								
Total margin per sack of flour as compared with 3½ cwt. of wheat	+ 7	7¾	14	0¼	10	10¾	9	9

When the margins here shown are considered it must be borne in mind that they are not quite comparable to those shown in the main Table. In addition to the "declared value" of imported wheat the miller in most cases would have to meet charges for port dues, unloading and transport, or, if the miller did not purchase c.i.f., the merchant would bear these charges and add profits, and the price to the miller would be correspondingly increased. These margins would be applicable only in the case of the port miller, and even then would have to cover items of cost not allowed for in the other estimates.

However, the results of the two estimates may be compared with somewhat striking results.

For the pre-war years the result is very much as might have been expected, but in 1921 the difference between the margins as estimated on the two bases is very wide. This is partly due

ESTIMATED MILLER'S MARGIN.

	On Market Price of Manitoba and English	On Declared Value of all Imported and English	Difference
	s. d.	*s. d.*	*s. d.*
1911–13 . . .	6 11	7 8	0 9
1921	8 6	14 0	5 6
1922	7 3	10 11	3 8
1923	6 9	9 ·9	3 0

to the high value of Manitoba wheat as compared with the value of all imported wheat in that year. No. 1 Northern Manitoba reached an average price of 19*s.* 2*d.* per cwt. for the whole year, while the average of the "declared value" of all imported wheats was 17*s.* 3*d.*, or a difference of 1*s.* 11*d.* per cwt. But the difference in the estimated margins was also partly due to high costs of handling imported wheat, especially high transport costs in that year. These costs are reflected in the high inland prices of Manitoba wheat; but in 1921 the price of the strong wheats was also influenced to some extent by keen demand for them which was due to the desire of millers to improve the quality of flour after the war conditions. For the last two years the differences between the estimates on the two bases is scarcely greater than might have been expected, for it must be remembered that in the grist made up of five parts imported and one part British 326 lb. of the 3½ cwt. is imported. In 1922, the difference in price, which has to cover costs over and above the "declared value" and the difference in quality between No. 1 Northern Manitoba and the average of all imported wheats, is about 1*s.* 3*d.*, and in 1923, it is 11*d.* per cwt. When allowance is made for the higher costs of handling and transport since 1913, the margins in the last two years appear to be reasonable.

If the proportions of imported and English wheat are taken at 6 to 1 instead of 5 to 1 respectively the margins will be very slightly diminished, the difference in 1911–13 being less than one penny and even in 1921 only a little more than one penny.

For final and reliable computation of the miller's margin a careful collection of prices of wheat, flour, and offals would be required, but the study above at least indicates that comparatively simple records will make possible fairly accurate estimates of the expansions and contractions of these margins, although they can never show the net profit or loss.

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THE ECONOMICS OF AGRICULTURE WITH SPECIAL REFERENCE TO THE LAG BETWEEN EXPENDITURE AND RECEIPTS.

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I. INTRODUCTION.

SEVERAL official Reports and many unofficial books and papers on the economic condition of agriculture have recently been published. Indeed, the vast upheaval due to the War makes the last ten years of exceptional value in all economic enquiries. Changes in price are on such a scale that causes and effects obscure in normal times become easy to trace. In agriculture, extensive collections of facts and figures are now available, and many and diverse conclusions have been drawn from them.

If I add to the literature on the subject, it is because I venture to think that the work described in the following pages may enable those interested in agricultural economics to look at the problems of the present time from a somewhat new point of view.

In the first place, in considering the rise and fall of agricultural prices from 1914 to 1924, and the effects which have followed, former writers have either dealt with agricultural produce generally, with different products roughly weighted in proportion to their relative importance in English farming as a whole, as in the index number of the Ministry of Agriculture, or else taken the rise and fall in price of one commodity, such as wheat.

Neither method seems to me to be adequate. It is better to take one type of farm at a time and calculate the rise and fall in its total probable normal receipts as the prices of its actual products vary. We thus get a picture which, if limited, is true to the object it is meant to represent.

Secondly, in dealing with the complementary problem of costs of production, existing treatment seems equally unsatisfactory. Many people have given diagrams for the changes during the last ten years in the cost of different items in a farmer's expenses, putting side by side curves for labour and for superphosphates, though the outlay on one may be ten times that on the other.

Here too it is well to take one kind of farm, analyse its actual outlay, weight each item in the ratio of its relative importance, and draw a curve representing the total cost of production on that farm, as it varies from year to year, to compare with the curve showing the total receipts.

Thirdly, it has long been recognised that a farmer's "turnover" may be very slow—that he has to cultivate his land and feed his stock for many months before he can market and sell his produce. It is also realised that this lag of receipts behind expenditure not only involves a large working capital, but also makes agriculture specially liable to loss in times of falling prices. For instance, we may read in the official Report that, in the great fall of 1920 to 1922, "the real disaster lay in the fact that farmers had bought and produced at high prices and had to sell at figures which did not cover their out-of-pocket expenses."[1] Again, Mr. Enfield points out that "a large proportion of the labour costs are incurred, roughly speaking, up to a year before the grain is sold, and so far as this is the case, the wages curve for the preceding year represents the relative cost of labour."[2]

Nevertheless, no attempt seems to have been made to place this knowledge on a quantitative and scientific basis, to adjust the curves of prices and costs to show its effect, or to consider its full bearing on agricultural economics and national agricultural policy. No attempt, indeed, has been made to do this for any industry, though it has a direct bearing on general economic theory.

The problem I have set myself is to find a real if approximate value for what I propose to call the "economic lag" of different kinds of farming. If a farmer's costs were all incurred 6 months before his sales, the economic lag would be 6 months. If they were evenly spread over the farming year from the autumn ploughing to harvest, and the produce was sold at the following Christmas, the costs would begin at 15 and end at 3 months before sale—an average lag of 9 months.

In actual practice, of course, the outlay occurs at irregular intervals and in differing amounts. The average number of months before sale of each item of expenditure, multiplied by its fraction of the whole costs of production of the crop, gives the properly weighted value for its economic lag.

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[1] *Agricultural Statistics*, 1921, Part III, page 92.

[2] *The Agricultural Crisis*, 1920–3, by R. R. Enfield.

Thus, if the total cost of growing wheat be £9 or 180*s.* an acre, and 15*s.* be spent on ploughing in October, 14 months before the wheat is sold, the weighted lag for that operation is $14 \times \frac{15}{180} = \frac{7}{6} = 1{\cdot}13$ months. This calculation is made for each item of expenditure. The results added together give, say, 13 months as the economic lag for the wheat crop. This means that the financial results are the same as though all the costs of growing wheat, which in reality are scattered over a long time, were incurred 13 months before sale.

In the next place it is clear that the whole rotation of crops must be brought into account. Thus, with a four years' rotation —roots, barley, seeds, wheat—the benefit of the cleaning cultivations for the root crop, and sometimes of its manure, has to be spread over all the four years, and divided in right proportions between the roots and the three succeeding crops. Such calculations involve matters of opinion, but I have followed the instructions accepted by the various Institutes of Agricultural Economics for the guidance of accountants in costing determinations. By this procedure uniformity is secured, and the results obtained by different investigators, if not accurate absolutely, are at least comparable with each other.

The details of the calculations are given in the appendix. Doubtless those specially conversant with the different kinds of agriculture will criticise some of the figures. The present investigation clearly cannot be exhaustive; it is meant rather to point out a new method of research and obtain preliminary results of general interest.

Similar calculations give the crude economic lag for different kinds of agricultural produce. They vary from 3·9 months for the fattening of pigs on a grass farm to 17·7 months for bullocks fattened on arable land.

This crude lag is subject to two corrections. The first depends on the perpetual cycle of agricultural work. A value has to be assumed for farmyard manure spread on a root crop or on the ground cleared of "seeds" before it is ploughed in preparation for winter wheat. Both depend on costs of production incurred some time before; both are themselves subject to economic lag.

This correction varies from 2 to 8 per cent for different arable crops. For livestock, it only applies to the home-grown food, and is therefore only a quarter or a third of these values. It may perhaps be argued that there is a lag of some 3 months in producing farmyard manure, which will itself be subject to a similar error, so that we shall get a correction of a correction and so *ad infinitum.* Luckily, these corrections form what mathematicians call a convergent series. Eight per cent of 8 per cent is but little more than half of 1 per cent of the original, and for our purposes is quite negligible, and so *a fortiori* are corrections of higher orders. We may rest satisfied with our first adjustment.

When this correction is applied, we get the normal economic lag for times when no great change in costs is going on.

But, when prices change rapidly, a second correction is necessary. The costs when incurred may be either higher or lower than they would be at the time of sale. This will affect the fraction of the total cost to be charged to each operation, and thus alter its weighted lag. In the instance given above, if the cost of ploughing for wheat 14 months ago had been 25*s.* an acre instead of 15*s.*, and the cost of the other operations unchanged, the weighted lag would have been $14 \times \frac{25}{190} = 1{\cdot}84$ months instead of 1·13 months.

I have investigated this correction mathematically in Appendix II, on the assumption that work is carried on regularly over the whole time of cultivation, so that the normal economic lag is half that time. Of course, this is not justifiable for any one crop, but, when applied to the whole working of a farm, it will give a fair indication of the effect of changing prices on the average economic lag.

The investigation shows that, when prices fall steadily to half value in one year, which is about the measure of the disastrous slump of 1920–1, the economic lag of agricultural produce is increased by one-ninth, that is, 11 per cent, and, if prices rise at an equal rate, the lag is diminished by 11 per cent.

But these are extreme fluctuations—not, we hope, to be repeated for another century. In ordinary times, a rise or fall in prices and costs of 10 to 15 per cent in a year is probably the most to be expected. The correction to be applied to the normal economic lag for a change in prices of 12 per cent in one year, 1 per cent per month, is ± 1·8 per cent. From this the effect of other rates of change in prices may easily be deduced.

Those to whom the integral calculus is an unconvincing form of argument, instead of believing Appendix II, may work out approximate values for this correction by taking the costs month by month (or better week by week), as they vary, and calculating from them the total economic lag.

Having investigated the economic lag of the chief kinds of agricultural produce individually, it remains to apply the results to the combined operations of the farm. Here again, it is necessary to deal with actual cases, and to consider one kind of farm at a time.

The whole investigation has now been outlined. I propose to take representative types of farming, calculate the variation in their normal receipts and costs of production as prices rose and fell during the years 1914 to 1924, and trace the effect of the economic lag on the trading account of an ideal farm of each type.

Agriculture differs so profoundly in different parts of the country and on different kinds of soil, that it seems useless to consider it as a whole. But no one observer in a limited time can deal with every type. I have therefore studied two farms representing strongly contrasted practice—an arable light-land "sheep and corn farm" in East Anglia, and a grass dairy farm, mostly on heavy clay, in the West of England.

From the operations on these two farms the distribution of the total cash receipts and expenditure among the several items is determined. Then the total economic lag of each farm is calculated.

This consideration of individual farms, of course, cannot cover British Agriculture as a whole. Yet the method adopted will enable others to apply the results with appropriate modification. The operations of the farmer's year are analysed into their component parts. The economic lag, for example, of the barley crop or of milk production, is estimated individually. These elements are then combined in the right proportions to represent the operations on the farm under consideration, but they might, with little change, be combined in other proportions to give results characteristic of other kinds of farming.

No use has been made of the actual figures of profit and loss on individual farms. Such figures depend on too many accidental factors to be of much general value. Moreover, owing to the shortage of supplies during and just after the War, some farmers could not obtain their usual amount of fertilisers and feeding-stuffs, and so perforce had their outlay diminished. It was therefore thought better to trace the effect of prosperity and adversity by taking the percentage increase in prices over those of 1911–13 from the official returns, and calculating the effect on the receipts and expenditure of an ideal farm. Results are thus obtained which do not depend on the skill of an individual farmer, the luck of the local market, or the vagaries of the English climate at one spot.

It should be pointed out that the present enquiry is not concerned with changes in stocktaking valuations. Such changes are, of course, responsible for a very great appreciation of capital assets during the years 1914 to 1920, and a more sudden depreciation of large, though not equal, amount from 1920 to 1923. These changes, as they occur, are rightly brought into a farmer's complete profit and loss account, though they do not affect his cash position. But, in this paper, we are dealing with cash trading accounts only.

II. East Anglian Arable Farming.

The first of the two farms to be considered in detail is a typical East Anglian light land "sheep and corn" farm, where barley is the chief product. Sheep, cattle and pigs are also bred and fattened, and a little sugar-beet is now grown.

The total area is between 600 and 700 acres, of which less than 16 per cent is under permanent grass.

The number of men working per 100 acres is 3·69. The farmer himself is reckoned among these men.

In 1923–4 the total sales amounted to £7 19*s*. per acre, and £215 per man working on the farm.

The percentage of the total sales in 1923–4 contributed by each commodity is given in the second column of Table I. The succeeding columns show the effect of the rise and fall in prices during the years 1914–24. The top figure in each space gives the percentage increase over the average price during 1911–13, and the bottom figure, printed in italics, gives this percentage multiplied by the fraction of the total sales represented by each commodity. By adding together these latter figures for each year, we get the percentage increase in the price of the products of this farm, taken as a whole, for that year, compared with that for the basic period 1911–13. Below is placed the official Index Number showing the price of "Agricultural Produce" for English farming generally (*see* p. 128).

We have now to turn to costs of production and treat them in the same way as we have done the receipts.

It would be desirable, for the sake of completeness, to reckon separately the charges for railway and other transport, which are now included in various items of these costs, and adjust some of the receipts which are also affected by transport charges. This would be easy to do in the case of, say, feeding-stuffs and artificial manures, but transport charges enter into such things as the cost of labour, and the receipts from the sales of grain, in a very complicated and elusive manner. Dealing separately with them would not appreciably affect the result of this enquiry, and therefore it seems better to leave them to be included in the different items as given.

Nevertheless, it would be of interest if some one would take the trouble to analyse each part of a farmer's receipts and expenditure, and estimate how transport charges affect his balance-sheet at the end of a year. That is a separate problem, which need not detain us here and now.

The heaviest item in the arable farmer's expenditure is labour, which, on the farm considered, amounted to 39 per cent of the total costs in 1923–4. And, of all parts of the expenditure, the cost of labour is the most difficult to estimate accurately.

TABLE I.

Increase in the Prices of Produce from Arable Land as compared with the Average of the Three Years 1911–13 (1) *as a percentage, and* (2, *in italics*) *weighted for the Fraction of the Total Sales represented by each Commodity.*

	Percentage of sales	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924
Wheat	7·2	7 *·5*	62 *4·7*	79 *5·7*	132 *9·5*	123 *8·9*	123 *8·9*	147 *10·6*	119 *8·6*	46 *3·3*	40·5 *2·9*	52 3·7
Barley	42·4	—4 *—1·7*	31 *13·1*	88 *37·3*	128 *54·3*	108 *45·8*	167 *70·8*	215 *91·1*	84 *35·6*	41 *17·3*	34·6 *14·7*	65 *27·6*
Oats	2·0	5 *·1*	52 *1·0*	68 *1·4*	151 *3·0*	149 *3·0*	164 *3·3*	187 *3·7*	72 *1·4*	47 *·9*	43·2 *·9*	38 *·7*
Cattle	10·1	6 *·6*	36 *3·6*	58 *5·9*	105 *10·6*	111 *11·2*	132 *13·3*	163 *16·5*	127 *12·8*	63 *6·4*	51 *5·1*	53 *5·4*
Milk	5·8	3 *·2*	17 *1·0*	57 *3·3*	91 *5·3*	151 *8·8*	200 *11·6*	203 *11·8*	163 *9·5*	79 *4·6*	75 *4·35*	70 *4·1*
Sheep	14·4	13 *1·9*	30 *4·3*	57 *8·2*	97 *14·0*	110 *15·8*	130 *18·7*	187 *26·9*	117 *16·8*	100 *14·4*	87 *12·5*	87 *12·5*
Pigs	5·0	6 *·3*	29 *1·5*	67 *3·3*	126 *6·3*	166 *8·3*	176 *8·8*	230 *11·5*	128 *6·4*	87 *4·4*	65 *3·2*	37 *1·8*
Hay and Straw (Hay)	3·9	—23 *— ·9*	6 *·2*	52 *2·0*	57 *2·2*	87 *3·4*	157 *6·1*	192 *7·5*	51 *2·0*	40 *1·6*	30 *1·2*	1 *·0*
Mangolds, Sugar-beet, etc. Sundries (Vegetables)	9·2	8 *·7*	24 *2·2*	54 *5·0*	138 *12·7*	157 *14·4*	157 *14·4*	119 *10·9*	146 *13·4*	96 *8·8*	48 *4·4*	65 *6·0*
TOTALS	100·0	1·7	31·6	72·1	117·9	119·6	155·9	190·6	106·5	61·7	40·2	61·9
"Agricultural Produce"		1	27	60	101	132	158	192	119	69	57	61
Totals increased by 20 per cent. and raised by 20 to give Diagram II		2·1 22·1	37·9 57·9	86·5 106·5	141·4 161·4	143·5 163·5	187·1 207·1	228·7 248·7	127·9 147·9	74·1 94·1	65·2 85·2	74·3 94·3

In the annual Reports on Agricultural Statistics, details are given of dates and figures for official changes in wage-rates during the life of the Wages Board, and estimates are given of minimum and average wages at certain other dates from 1917 onwards. From this source estimates have been made for the average rates paid during each of the calendar years under review. It seems that, compared with rates in 1911–13, the cash wages increased by the following percentages: 1917, 50; 1918, 94; 1919, 136; 1920, 181; 1921, 163; 1922, 100; 1923, 75; 1924, 56.

On the whole, too, as is mentioned in the Reports, hours are shorter than before the War, though longer than in 1919 and 1920, and, at all events during the War, labour was less efficient. To allow for the increases in cost due to these causes, 15 per cent has been added to the figures for the years 1919 to 1922 and 10 per cent for other years. The result is shown in the first line of figures in Table II. The first estimate given in the Reports is for 1917, and the increase is assumed to have risen steadily from 1914 till that year.

Seeds, in years when prices have been tested, seem to have varied approximately with the index number giving the price of "agricultural produce" generally. This index number has therefore been used for other years.

The cost of implements, repairs, etc., is taken as the mean between the cost of labour and of steel bars as given in the *Economist.*

Coal, stores, etc., are taken as increasing as the index number of "wholesale commodities other than food."

Rent was seldom changed during the War. In 1919 an increase of about 15 per cent was common, which was often reduced in 1922. Rent increased less over the years under review than any other of a farmer's costs.

No allowance is made either for a salary for management, or for bank interest on loans and overdrafts. Both have to be reckoned as paid for out of profits. This treatment is again in conformity with the practice of the Institutes of Agricultural Economics.

In Table II the various percentage increases over the averages of 1911–13 are set forth, and (in italics) the values of these increases, weighted for their importance in the total costs of the specimen farm. By adding together the numbers in italics, the average percentage increase in cost of the whole operations of the farm can be determined for each year (*see* p. 130).

The final yearly figures given in Tables I and II enable us to draw curves of relative receipts and expenditure on a typical arable farm for the years 1914 to 1924. During the pre-war years 1911–13 agriculture was in a healthy state, making fair profits for those engaged in it. If we regard this state as normal, we may start the receipts and expenditure curves together at this date. Then any rise of the receipts curve over the other means an abnormal profit, and vice versa any rise of the expenditure curve over that showing receipts means profits below normal or an actual loss.

TABLE II.

Increase in Costs of Production on an Arable Farm compared with the Average of the Three Years 1911–13, (1) *as a percentage, and* (2, *in italics*) *weighted for the Fraction of the Total Costs represented by each Item.*

	Percentage of costs	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924
Labour	39·1	5 *2·0*	20 *7·8*	37 *14·4*	55 *21·5*	108 *42·1*	156 *60·8*	208 *81·1*	187 *72·9*	115 *44·9*	83 *32·4*	62 *24·2*
Feeding Stuffs . . .	9·5	— —	37 *3·5*	87 *8·3*	174 *16·5*	187 *17·8*	168 *16·0*	173 *16·4*	81 *7·7*	46 *4·4*	42 *4·0*	
Fertilisers	4·0	—2 *—0·1*	15 *0·6*	56 *2·2*	96 *3·8*	111 *4·4*	115 *4·6*	159 *6·4*	120 *4·8*	47 *1·9*	24 *1·0*	
Seed	6·2	1 *0·1*	27 *2·9*	60 *3·7*	101 *6·3*	132 *8·2*	158 *9·8*	192 *12·9*	115 *7·1*	75 *4·6*	35 *2·2*	
Implements, etc. . .	9·7	2 *0·2*	19 *1·8*	53 *5·1*	72 *7·0*	101 *9·8*	164 *15·9*	240 *23·3*	180 *17·5*	81 *7·9*	56 *5·4*	
Coal Stores, Insurance, etc.	6·6	1 *0·1*	24 *1·6*	60 *4·0*	105 *6·9*	136 *9·0*	154 *10·2*	202 *13·3*	75 *5·0*	51 *3·4*	54 *3·6*	
Rent	22·2	—	—	—	—	—	15 *3·3*	15 *3·3*	15 *3·3*	10 *2·2*	10 *2·2*	10 *2·2*
Rates	2·7	4 *0·1*	8 *0·2*	0 *0*	8 *0·2*	16 *0·4*	40 *1·1*	120 *3·2*	135 *3·6*	120 *3·2*	10 *0·3*	10 *0·3*
TOTALS	100·0	2·4	18·4	37·7	62·2	92·0	121·7	159·9	121·9	72·5	51·1	

In this way we get the receipts curve and the first of the two expenditure curves of Diagram I, shown on page 136. Their comparison would give a history of the economic results of arable farming, if the expenditure were incurred at the same time as the receipts.

But this, as we have seen, is far from the truth, and we must now consider the economic lag of this particular kind of agriculture.

The lag for each kind of produce, as calculated in Appendix I, is carried to column 3 in Table III. In column 2 is given the output of each kind of produce as a percentage of the total sales, and in column 4 the economic lag weighted for this percentage. Adding together the figures in column 4, we find the average normal economic lag of this particular farm to be 13·8 months.

TABLE III.

Economic Lag of Light Land Arable Farm.

Produce	Percentage of Sales	Normal Economic Lag	Weighted Economic Lag
Wheat	7·2	13·6	·98
Barley	42·4	14·3	6·06
Oats	2·0	14·5	·29
Cattle	10·1	17·7	1·79
Milk	5·8	8·3	·49
Sheep and Wool	14·4	15·0	2·16
Pigs	5·0	8·6	·43
Hay and Straw	3·9	14·0	·54
Mangolds, sugar-beet and sundries	9·2	11·2	1·03
	100·0		13·77 months

A normal economic lag of 13·77, or say 13·8 months, indicates that an arable farmer's expenditure is incurred on the average 13·8 months before his receipts come in. Hence, to get a true picture of his financial operations from the diagram, we must shift the expenditure curve to the right by an amount corresponding to 13·8 months, in order to bring underneath the receipts for a given crop the expenses incurred in growing it. This has been done for the second expenditure curve in Diagram I, shown by the thick broken line.

Moreover, as already explained, the normal economic lag is the value for times of steady prices. When prices vary, especially when they vary so rapidly as in the years under review, the correction calculated in Appendix II must be applied. The correction is proportional to the rate of change in prices, that is, to the slope of the curve from point to point, and is ± 1·8 per cent for each fall or rise of 1 per cent per month in the level of prices or costs. From this result it is easy to calculate arithmetically the correction at a few points, to correct the lag at those points, and thus obtain a final corrected curve. The result is to decrease the lag on the arable farm from 13·8 to values lying between 13·2 and 13·6 months during the rise in prices, and to increase it at times during the fall to as much as 14·1 months. This adjustment has been made in the corrected costs curve of Diagram I.

Instead of exhibiting variations from "normal profits," as is done in Diagram I, it may be interesting also to construct a diagram to show absolute profits and losses. It is probable that, during the basic years 1911 to 1913, a well-managed arable farm made a modest profit. We may perhaps fairly start the receipts curve 20 per cent above the expenditure curve, indicating a return, in interest and salary of management combined, of 20 per cent on the turnover, or about 10 per cent on the capital invested. This is in approximate accordance with the estimate that, in normal years, a farmer's average profits are about equal to his rent.[1] The increase in receipts year by year must be raised in the same ratio of 20 per cent. This is done in the last line of Table I. The results appear in Diagram II, page 136.

Diagrams I and II set forth in different ways the economic results of arable farming during the years under review. In Diagram I the area between the receipts and expenditure curves measures the excess profits from 1914 to 1920, and the deficit from normal profits from 1920 to 1923, when the costs curve is higher. In Diagram II the corresponding areas measure the absolute profits and absolute losses. In both cases we deal with the trading account of our hypothetical ideal farm, where the chief products are barley and sheep, ignoring changes in valuation and individual good or bad fortune. The implication of these diagrams will be considered fully below.

III. West-Country Dairy Farming.

Let us now pass from east to west, and study a grass farm in Dorsetshire, most of it on the clay of the Blackmore Vale, with a narrow strip along the northern slope of the chalk hills of the Cattistock country—a change from plough-land to pasture, from partridges to foxes, from barley to milk.

Indeed, milk and its products form the staple industry of the neighbourhood. Each farm has a herd of cows—generally Shorthorns with a trace of Devon ancestry to give greater hardiness. Near each station on the railway is a "milk factory" at which milk is collected and forwarded to London or Bristol or Portsmouth, and the excess, when there is an excess, made into cheese.

The farmers sell their milk, which is collected daily by motor-lorries from the factories. Nowadays very little butter or cheese is made on the farms. But pigs are fattened and sometimes bred, and the redundant calves are sold young, or carried forward to be disposed of later on. Most of the land is under permanent grass; the less arable a man has the better he is pleased. On the farm considered, 15 per cent is arable, but that is a high proportion, due to a too-ready compliance with the demands of the "ploughing campaign" of 1917.

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[1] *See* Sir J. C. Stamp, *British Incomes and Property*, page 100.

The percentage that each product constitutes of the total sales, on the average of years, is fairly constant. It is given in the following table for the year 1923–4, with the corresponding economic lag as calculated in the appendix.

The total area is between 200 and 300 acres, of which 85 per cent is permanent grass.

Those at work on the farm, including the Manager, may be taken as equal to 2·4 per 100 acres.

In 1923–4 the total sales were equivalent to £7 10*s*. per acre, and £316 per man working on the farm. It is interesting to compare these figures with the £7 19*s*. per acre and £215 per man for the East Anglian arable farm.

We can now set forth the rise and fall in prices of produce (Table IV), in costs of production (Table V), and the economic lag (Table VI). The only new and doubtful estimation is that for estate work and sundries in Table IV. It is taken as the mean between labour and agricultural produce (*see* pages 134 and 135).

It will be seen that the normal economic lag for this grassland dairy farm proves to be only 7·0 months, as compared with the 13·8 months for a light land arable farm. This important point will be discussed fully below.

The costs rise 165 points in 6 years, which is equivalent to 1·2 per cent per month on the middle value. The lag must therefore be corrected by — 2·2 per cent, and becomes 6·9 months. The fall is 102 points in 3 years, a correction of + 2·8 per cent, bringing the corrected economic lag to 7·2 months. We can now plot the three curves of Diagram II for an ideal grass dairy farm: (1) Prices of Produce; (2) Costs of Production; (3) Costs corrected for Economic Lag.

The curves in Diagram III give the Prices and Costs curves adjusted to show whether the normal profits of 1911 to 1913 are being earned. In Diagram IV the prices are adjusted to show absolute gains or losses. This is done as before by taking the normal receipts of the pre-war years 1911–13 as 20 per cent higher than the expenditure, and raising the figures for the receipts of other years *pro rata* throughout.

TABLE IV.

Increase in the Prices of Produce from Grass Land compared with the Average of the three years 1911–13 (1) *as a percentage, and* (2, *in italics*) *as weighted for the fraction of the Total Sales represented by each Commodity.*

	Percentage of Sales	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924
Milk.	66·0	3	17	57	91	151	200	203	163	79	74	70
		2·0	*11·2*	*37·6*	*60·1*	*99·7*	*132·0*	*134·0*	*107·6*	*52·1*	*48·8*	*46·2*
Calves and young Bulls	7·2	9	21	40	82	72	50	130	95	50	47	48
		0·6	*1·5*	*2·9*	*5·9*	*5·2*	*3·6*	*9·4*	*6·8*	*3·6*	*3·4*	*3·5*
Cows	5·0	6	36	58	105	111	132	163	127	63	51	53
		0·3	*1·8*	*2·9*	*5·2*	*5·6*	*6·6*	*8·1*	*6·3*	*3·1*	*2·6*	*2·6*
Fat Pigs	14·8	6	29	67	126	166	176	230	128	87	65	37
		0·9	*4·3*	*9·9*	*18·6*	*24·6*	*26·0*	*34·0*	*18·9*	*12·9*	*9·6*	*5·5*
Poultry and Eggs . .	1·1	—3	17	44	83	184	159	165	119	92	70	65
		0·0	*0·2*	*0·5*	*0·9*	*2·0*	*1·7*	*1·8*	*1·3*	*1·0*	*0·8*	*0·7*
Corn	1·5	7	62	79	132	123	123	147	119	46	40·5	52
		0·1	*0·9*	*1·2*	*2·1*	*1·8*	*1·8*	*2·2*	*1·8*	*0·7*	*0·6*	*0·8*
Estate Work and Sundries	4·4	3	23	47	77	116	154	196	149	90	72	62
		0·1	*1·0*	*2·1*	*3·4*	*5·1*	*6·8*	*8·6*	*6·6*	*4·0*	*3·2*	*2·7*
TOTALS	100·0	4·0	20·9	57·1	96·2	144·0	168·5	198·1	149·3	77·4	69·0	62·0
Totals for arable land from Table I . .	100·0	1·7	27·5	72·1	117·9	119·6	156·0	190·6	106·6	61·7	54·3	61·9
" Agricultural Produce"		1	27	60	101	132	158	192	119	69	57	61
Totals increased by 20 per cent. and raised by 20 to give Diagram IV		4·8 24·8	25·1 45·1	68·5 88·5	115·4 135·4	172·8 192·8	202·2 222·2	237·7 257·7	179·2 199·2	92·9 112·9	82·8 102·8	74·4 94·4

TABLE V.

Increase in Costs of Production on Grass Land compared with the Average of the three years 1911–13 (1) *as a percentage, and* (2, *in italics*) *as weighted for the Fraction of the Total Costs represented by each Item.*

	Percentage of Costs	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924
Labour	26·6	5 *1·3*	20 *5·3*	37 *9·8*	55 *14·6*	108 *28·7*	156 *41·5*	208 *55·3*	187 *49·7*	115 *30·6*	83 *22·1*	62 *15·3*
Feeding Stuffs . .	33·4		37 *12·4*	87 *29·1*	174 *58·1*	187 *62·5*	168 *56·1*	173 *57·8*	81 *27·0*	46 *15·4*	42 *14·0*	
Fertilizers	1·5	—2 *–0·03*	15 *0·3*	56 *0·9*	96 *1·4*	111 *1·7*	115 *1·7*	159 *2·4*	120 *1·8*	47 *0·7*	24 *0·4*	
Store Pigs	3·5	18 *·62*	28 *·98*	63 *2·2*	80 *2·8*	135 *4·7*	179 *6·3*	274 *9·6*	152 *5·2*	119 *4·2*	124 *4·3*	
Implements and Tradesmen	9·9	2 *0·2*	19 *1·9*	53 *5·2*	72 *7·1*	101 *10·0*	164 *16·3*	240 *23·0*	180 *17·0*	81 *8·0*	56 *5·5*	
Coal, Stores and Sundries	5·5	1 *0·5*	24 *1·3*	60 *3·3*	105 *3·8*	136 *7·5*	154 *8·5*	202 *11·1*	75 *4·1*	51 *5·8*	54 *3·0*	
Rent	17·6	— —	— —	— —	— —	— —	15 *2·6*	15 *2·6*	15 *2·6*	10 *1·8*	10 *1·8*	10 *1·8*
Rates	2·0	4 *0·08*	8 *0·16*	0 *0*	8 *0·16*	16 *0·3*	40 *0·8*	120 *2·4*	135 *2·7*	120 *2·4*	100 *2·0*	
TOTALS	100·0	2·7	22·3	50·5	90·0	115·4	134·6	165·0	110·1	68·9	53·1	
Totals for arable Land from Table II . .	100·0	2·4	18·4	37·7	62·2	92·0	121·7	159·9	121·9	72·5	51·1	

TABLE VI.

Economic Lag of Grass Land Dairy Farm.

Produce	Percentage of Total Sales	Normal Economic Lag	Weighted Economic Lag
Milk	66·0	7·65	5·05
Calves, etc.	7·2	6·95	·50
Cows	5·0	8·5	·43
Fat Pigs	14·8	3·9	·58
Poultry and Eggs	1·1	3·0	·03
Corn	1·5	13·6	·20
Estate work and sundries . . .	4·4	5·0	·22
	100·0		7·01

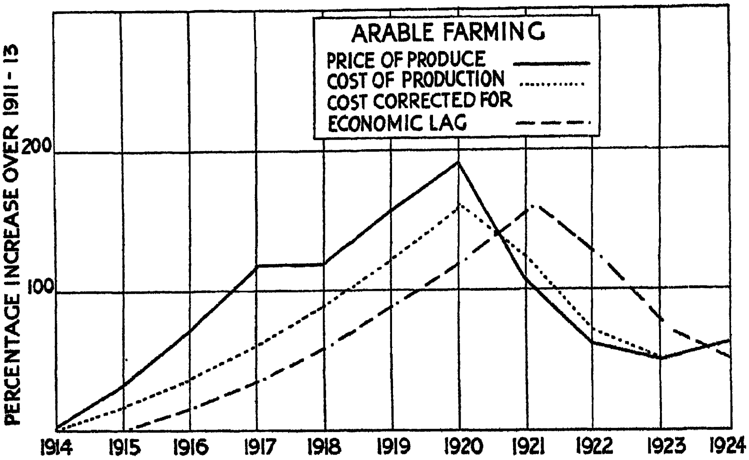

DIAGRAM I.

Profits and Losses of Arable Farming as compared with the "Normal Profits" of 1911–13.

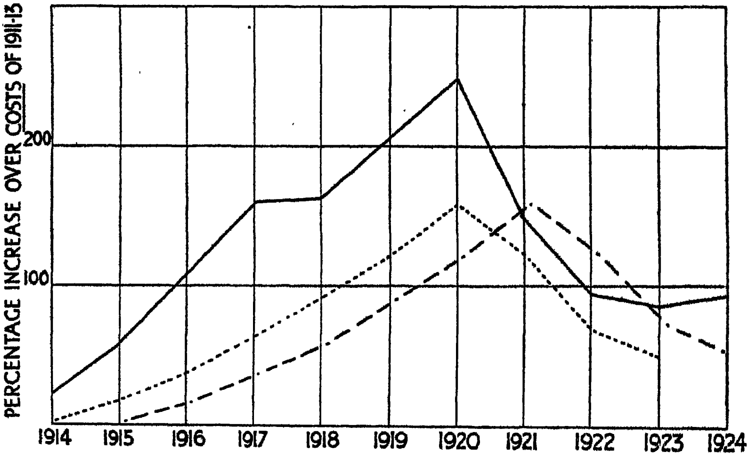

DIAGRAM II.

Absolute Profits and Losses of Arable Farming, taking the Annual Profit of 1911–13 as 20 per cent. on the Turnover.

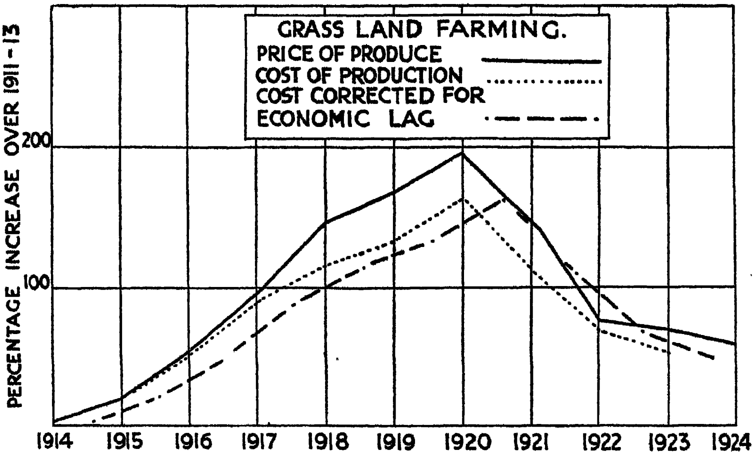

DIAGRAM III.

Profits and Losses of Grass Land Farming as compared with the "Normal Profits" of 1911–13.

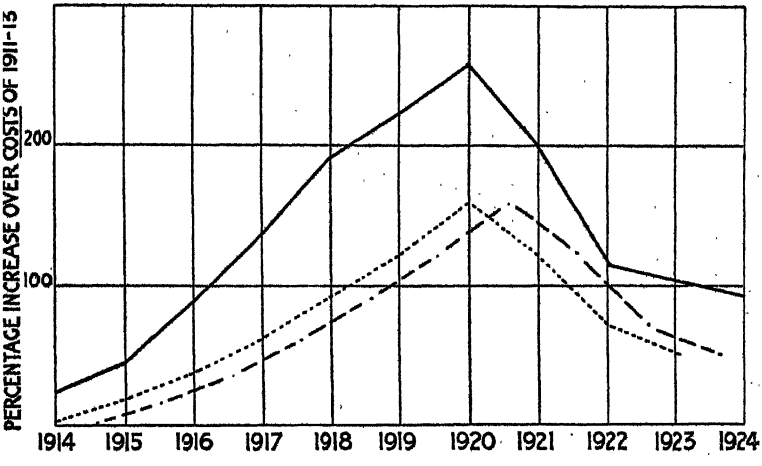

DIAGRAM IV.

Absolute Profits and Losses of Grass Land Farming, taking the Annual Profits of 1911–13 as 20 per cent. on the Turnover.

IV. RESULTS.

We can now discuss the results of the investigation as summarised in the Tables and exhibited graphically in the Diagrams.

But let us first repeat the caution already given. We are not concerned with any rise or fall in capital valuation; our conclusions refer not to a farmer's complete profit and loss account, but to his cash trading account only. Nothing is allowed to the farmer for salary as manager: that, if earned at all, comes out of profits, and so must bank interest if any is paid. Moreover, we are not tracing the fortunes of any particular farm which depend on individual skill and luck. We imagine an ideal farm, which sells the same amount of produce every year, and always obtains the prices quoted in the official averages. With these limitations, the diagrams show at a glance the economic results of arable- and grass-land farming during the fateful years 1914 to 1924.

Taking first the ideal arable farm, the heavy continuous line of Diagram I indicates the rise and fall in price of its products, while the thin dotted line shows the costs which were being incurred simultaneously. When the curves coincide, the normal profits of 1911–13 were being earned. It will be seen that the costs line only rises above that giving the value of the produce from 1921 to 1923, and then only by a narrow margin. Were it not for the economic lag, the trading account profits of an ideal arable farm would only have fallen a little below normal during those three years; from 1914 to well into 1921, they would have been above normal.

But, when the costs line is shifted to the right to allow for the economic lag of from 13·2 to 14·1 months, a very different outlook appears. The corrected costs, shown by the thick, broken line of Diagram I, go on rising after prices have begun to fall rapidly, and only begin to diminish in the second half of 1921. The result is the heavy loss in profits measured by the area enclosed between the cost and produce lines from 1921 to 1924 while the costs line lies above that of receipts.

The Diagram shows plainly the effect of economic lag. The lag increases greatly the profits made while prices are rising, but it also much exaggerates the losses while prices are falling. It increases enormously the risks of farming.

The same story is told by Diagram II, which traces the probable absolute cash profit or loss on the trading account of an arable farm on the assumption that, on the average of 1911–13, a profit of 20 per cent on the turnover (perhaps 10 per cent on the capital) was made, the curve giving the prices of the produce being started 20 points higher and raised by one-fifth throughout.

The thin dotted line of uncorrected costs never rises above the produce line. Hence, if there had been no economic lag, an ideal arable farm would have shown no actual deficit on the trading account, though in 1922 there would have been little profit. But, when corrected for lag, as in the thick broken line, costs exceed receipts from 1921 to 1923. During those three disastrous years, the arable farmer was selling his produce for less than it cost him to grow, irrespective of his heavy additional losses on valuations.

The area on the Diagram measuring the profit from 1914 to 1921 much exceeds the area representing the subsequent loss. On our ideal farm a considerable net profit would have been obtained on the whole stretch of years by a man farming throughout the time. But it must not be forgotten that this hypothetical ideal farm is free from danger of drought or floods, of disease or the chances of local markets. Moreover, profits have a tendency to leak away to others; losses stay with him who makes them, or rather, perhaps, with him and his landlord. Steady, moderate returns are better than violent oscillations. Nevertheless, the relative areas representing profit and loss in Diagram II are a curious commentary on some recent writings.

Now let us turn to Diagrams III and IV, which illustrate graphically the fortunes of grass-land dairy farming. The rise in uncorrected costs are more nearly equal to the rise in prices of produce owing to the war-time dearness of feeding-stuffs, which, on the grass farm, are the biggest item in expenditure. Moreover, the economic lag of 7 months is but half that of the arable farm. Hence it is that on grass land, no such high profits were made during the good years, but no such heavy losses followed. On the average, the profits of 1921 were about normal, though tending downwards; then for two years they were low, but Diagram IV shows that no absolute cash loss should have occurred on the trading account, though in 1922 the price of the produce line nearly touches the curve of costs: in that year, the profits would probably not have been enough to pay wages of management to the farmer.

Of course, valuable dairy herds had to be written down severely, especially from 1920 to 1922, but they are still worth more than in 1913—poor consolation, perhaps, to the man who bought them in 1919. But the ideal grass farm, in its freedom from actual cash loss, differs greatly from the corresponding arable farm.

It is clear that the principal cause of the divergence between the financial results of the two types of farming is the difference in the economic lag. A grass farm is much less dangerous than an arable farm chiefly because its costs of production are incurred on the average only 7 months instead of 14 months before its receipts come in. I think the importance of economic lag is demonstrated, and the trouble involved in its numerical computation justified.

The diagrams suggest that the worst time for farmers is over. Both on grass and arable farms the receipts curve is now above the expenditure curve, though in 1924, while prices of arable produce rose, those from grass were still falling. Moreover, the diagrams do not show the disastrous results of the wet summer and autumn for the crops on heavy land and for all farm stock. Still, weather and other accidents apart, the general outlook is more hopeful.

V. AGRICULTURAL POLICY.

The conclusion that grass farming involves less risk than arable cultivation is nothing new; it does but echo the common voice of the agricultural community. But none the less is it worth while to analyse the causes and trace the effects in detail. Especially now, when there is a widespread desire to increase the area under the plough, it is well to know just where we stand, and what are the unalterable economic factors in the problem.

It is clear that we can do very little to decrease the economic lag of arable farming. It is not quite beyond all control. The growth of sugar-beet, which involves the immediate sale of some of the root crop in the rotation, will, as shown in the appendix, shorten the lag, not only of the root crop itself, but of all the other crops in the rotation. This is a curious and unexpected advantage, which reinforces the arguments in favour of developing the cultivation of sugar-beet in England. Still, the fact remains that the economic lag of arable farming must remain high.

But the lag is only dangerous in times of falling prices: were prices and costs stabilised, arable farming would involve a higher working capital than grass farming, but its special risks would lose their terrors, and men would once more be willing to speed the plough. If we cannot decrease by much the economic lag, the alternative is to stabilise prices as far as may be, and so minimise those fluctuations which are the curse of all industry, and especially of agriculture. This is our final conclusion, and to its consideration we shall return.

But first we must discuss shortly how far it is possible and desirable to increase the acreage under arable cultivation. On some land there is practically no choice. Heavy clay in wet districts is almost impossible to cultivate. Poor, light land in the dry Eastern Counties will not carry permanent grass, the cost of fencing would be prohibitive, and water for stock sometimes unobtainable. But some land can be passed from one type of agriculture to the other if the inducements are great enough. Only this doubtful land is in dispute. It is suggested that another million acres should be brought under the plough. Are we justified in incurring the national outlay necessary to overcome the economic forces making for more grass?

The military factor in the problem is outside the scope of this paper. No one without official and probably confidential information can profitably discuss it. If, for military reasons, the Government decide that it is necessary to increase the equipment and knowledge needed for arable cultivation, they must say so and take action accordingly.

But I think a few words may not be out of place on other aspects of the question. Firstly, there is the relative yield of food from arable and grass land. If we take the mere fuel value in calories or reckon in starch equivalents, the plough-land yields much more. Sir Daniel Hall[1] estimates that in starch equivalents an acre of arable land produces from 2½ to 3 times as much food as an acre of grass. The two farms we have dealt with may be roughly compared by assuming that it costs 1¼*d.* to buy 1,000 calories in cereals, 4*d.* in milk, and 1*s.* in meat. On these figures, an arable acre gives 2·4 times as much fuel value as an acre of grass. But, since to cultivate it more men and their dependents have to be fed, the net excess of food from the arable land is less than these numbers indicate.

If we consider quality instead of quantity, the grass-land makes a better showing. It yields a higher proportion of the more valuable digestible proteins in milk, eggs and meat. This is the reason of the high money return, which is approximately the same from grass as from arable crops—£7 10*s.* as against £7 19*s.* per acre.

In discussing the relative national importance of arable and grass farming, this last result is seldom realised, or, at all events, seldom brought out. Financially, grass yields almost, if not quite, as much to the acre as plough-land. Indeed, I should expect to see a more extended enquiry give results more favourable to grass; for our specimen arable farm is good though light land, whereas the specimen grass farm is somewhat poor clay.

Except, then, as regards mere caloric power or quantity of food, the yield per acre is probably as high from grass as from arable land; it is obtained at less expense, and, as we have seen, at much less risk.

Moreover, most industries are considered as of more national benefit when the value of the output per man employed is high, so that good wages can be paid. And here grass has the distinct advantage. In our example, grass yields a return of £316 a year per man, while arable land only gives £215. And, as a matter of fact, wages are nearly always higher in a neighbourhood where grass predominates. From this point of view, arable land growing sheep and barley is not so advantageous to the nation as permanent pasture used for dairying.

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[1] *Agriculture after the War*, 1916, page 32.

But here again, as in the output of food, if mere quantity is concerned, arable land gives more employment; 3·7 men work on 100 acres of the specimen farm compared with 2·4 men on the dairy farm, or roughly 24 men per square mile of country instead of 15. Thus, sowing land down to grass diminishes aggregate employment, though it leads to higher rates of wages.

Attention has recently been called to the advantage of dairying and stock raising on arable land. It is true that both quantity and quality in the yield of food might thus be obtained, if the extra cost made it profitable. On the other hand, it must not be forgotten that milk production is now only moderately remunerative even on grass, and butter and cheese are exposed to keen colonial and foreign competition. Again, fattening bullocks on arable land is the process which has the highest economic lag of any of those studied in the appendix, it therefore increases the risk of arable farming. It is probable that the scope for thus improving the position of the arable farmer is limited.

As things stand at present, to sow down arable land which will carry good grass clearly increases the financial efficiency of the capital and labour employed. In any ordinary industry, the balance of economic advantage would settle the question at once. A country can only increase in capital resources and national income, and improve the average standard of life of its people, if its industries are carried on at a profit and the excess reinvested—an old-fashioned doctrine, somewhat ignored of late, but none the less true.

But the land is limited in area, and so agriculture cannot expand to absorb the labour displaced as does another industry when it grows more efficient. That is why the question of the amount of employment bulks so largely in any discussion of agricultural policy. If land be sown down, the men displaced cannot be absorbed by any extension of the industry, though the process is often carried out so slowly that little actual unemployment need follow.

Must we then sacrifice efficiency to increase employment? It sounds a counsel of despair, and I believe another and a better solution is possible. There is a general desire to maintain a large and healthy rural population, but agriculture is not the only rural industry. If, instead of fighting against economic forces, and attempting to plough up unsuitable land, we try to start new industries in rural districts and encourage the migration of old industries from town to country, the desired effect could be produced more economically, with the incidental advantage of improving the market at the farmer's door, and, to some slight degree, making the middleman less necessary.

In this endeavour the development of electric supply should help. I have shown elsewhere in this Volume[1] that the present use of mechanical power on farms is not enough to encourage Supply Companies to run a network of high tension mains over purely agricultural areas. But, where there is a chain of villages from town to town, public supply becomes possible. Also in several places village power-stations have been erected and proved a financial success, and, failing them, private installations are often possible. However obtained, good light and convenient power will add to the amenities of country life and aid in the development of rural industries.

Direct legislative interference with an industry is usually undesirable. I believe in letting landowner and farmer make their own choice between grass and arable farming, and trying to encourage alternative employment over the country-side. It is very seldom that a case can be made out for trying to overcome the free play of economic forces.

But I do hold very strongly that something can be done to modify the economic conditions themselves, and, by the stabilisation of prices, to remove the chief obstacle to arable farming. It is in this direction that the consensus of agricultural opinion, for which the Government ask, is to be sought. Protection is not practical politics; and, after his experience of subsidies, the farmer rightfully mistrusts their permanence; Government trading has not usually proved a success save in time of war when cost is not regarded. But stabilisation of prices can be secured, in the light of present economic knowledge, by other and better means, and is imperatively needed by urban industry as well as by agriculture. Here the interests of farmers and manufacturers, of country and town, for once are identical.

VI. THE STABILISATION OF PRICES.

Variation in price is a complex phenomenon, which can be analysed into three factors. Firstly, there is a special variation, due to causes peculiar to one commodity, well seen when the glut of potatoes in 1922–3 drove the price below pre-war figures. and the comparative scarcity of 1923–4 lifted it again. Secondly, there is a recurrent change, due to the familiar cycle of good and bad trade, which, in normal times, runs through its phases in a few years. Thirdly, there is a slow drift, underlying the other changes and only visible in a tendency to rise or fall over a long period. Thus, from 1823 to 1848, the average prices of wholesale commodities, including agricultural produce, fell by 25 per cent. From 1848 to 1873 they rose by 20 per cent. From 1873 to 1896 there was a fall of 40 per cent, and from 1896 to 1908 a rise of 25 per cent.[2]

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[1] *Journal of the Royal Agricultural Society*, 1924, Vol. 85, page 246.

[2] *An Introduction to the Study of Prices*, by W. T. Layton, 1922, page 23.

Each agricultural product shows its own oscillations in price in accordance with the first of these changes, but the second and third affect agricultural and other commodities in a similar way, and must be produced by causes common to all.

The great tidal wave due to the War may be regarded as an exaggerated form of the smaller wave of the ordinary trade cycle. That it affected agriculture similarly to other industries has often been pointed out. The following table gives a comparison between the prices of agricultural produce and of raw materials other than food.

TABLE VII.

Percentage Increase in Price over the Average of 1911–13.

Year	Agricultural Produce	Raw Materials	Year	Agricultural Produce	Raw Materials
1914 .	1	0	1920 .	192	194
1915 .	27	23	1921 .	119	111
1916 .	60	59	1922 .	69	74
1917 .	101	103	1923 .	57	64
1918 .	132	132	1924 .	61	72
1919 .	158	152			

The correspondence in the rise and fall in prices of agricultural produce and of raw materials other than food proves that the changes cannot be due to causes peculiar to one industry. A similar correspondence appears in the more moderate changes of pre-war years.

The cause of the trade cycle is well-known to economists as a combination of economic, monetary and psychological factors, and recent work, carrying on that of Alfred Marshall and Irving Fisher, makes clear the possibility of controlling and diminishing its harmful oscillations, chiefly by proper management of bank credit.[1]

The underlying, long term drift of prices is due to a movement in the position of equilibrium between the supply, on the one side, of goods and services, which increase with improvement in the arts of manufacture and the growth in trade, and, on the other, of money and credit, with which business is carried on. If both increase at the same rate, the general price level remains stable. If business grows faster than money, money becomes scarce and dear, that is, other things become relatively cheap and prices fall. If money is created faster than the need for it, or its velocity of circulation is increased, its value falls, that is, the prices of other things rise.

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[1] *Monetary Reconstruction*, by R. G. Hawtrey, 1923; *Monetary Reform*, by J. M. Keynes, 1923; *The Agricultural Crisis*, by R. R. Enfield, 1924.

When its money and credit are based on a gold standard, though free from the danger of the grosser forms of inflation, a country is at the mercy of any change in the value of gold in terms of commodities. The prosperity of agriculture from 1848 to 1873 was largely produced by the discoveries of gold in Australia and California, which increased the gold available faster than the growth in business, and thus made gold relatively more plentiful and therefore cheaper, that is, caused prices of other things measured in gold to rise. The long-drawn depression of 1875 to 1896 was chiefly due to the demand for gold outrunning the supply and forcing prices down when, in addition to the natural growth in business, Germany and other countries adopted a gold standard. Farmers had thus to meet increasing competition and bad harvests on prices that were falling from other causes. Cereals fell in all by about 50 per cent, but, as the average price of all commodities fell by 40 per cent, it is clear that most of the fall in agricultural prices was due to monetary causes, and comparatively little to cheap transport and foreign competition, to which the whole trouble is usually assigned. Agriculture suffered more than other industries owing chiefly to its long economic lag. Relief only came when, in the last years of the nineteenth century, new gold from South Africa flowed in faster than business increased, and raised the prices of other commodities measured in that metal.

It is a common delusion that a gold standard produces stable prices. Owing to a series of fortunate accidents, during the last century prices moved sometimes in one direction and sometimes in the other to a comparatively moderate amount. But, even so, as just explained, much harm was done. We have no right to expect that those fortunate accidents will be repeated—indeed, that is most unlikely to happen. Gold has certain advantages; but there is grave danger, unless precautions are adopted, that the return of one country after another to a gold standard, may once more make gold dear and other things cheap. We may be faced with a long period of falling prices, with the inevitable accompaniment of bad trade, unemployment, and renewed depression in agriculture.

But to understand causes is to see the right road to a cure. Economists have now put the theory of prices on a sound footing, and formulated methods of keeping the price level approximately constant, both as regards the tendency to long-term drift and short-term oscillations. In England with, in effect, an inconvertible currency, the general level of prices has been kept fairly steady during the last two years, and in America, based on gold, with the advice of Harvard and Yale, the Federal Reserve Board has done much to stabilise prices since June, 1922. But there are signs of danger ahead.

Foreign trade and international finance find greater convenience in stable exchanges. Home manufacture and agriculture are only healthy when prices are steady, a condition which may not always be compatible with stable exchanges. Hence arises a conflict of interests, in which trade and finance, better organised and in fewer hands, seem likely to prevail. The Federation of British Industries has repeatedly asked the Government for an enquiry into monetary policy, and once the Central Chamber of Agriculture has done likewise. No attention has yet been given to their representations. Manufacturers and agriculturalists might well unite to bring their influence to bear in Parliament and in the Country. One trouble seems to be that some people find monetary theory difficult and obscure. In reality it is simpler than the theory of protection, which everybody thinks he understands. The stabilisation of prices is a more practical remedy for agricultural ills.

The sudden changes in price which are due to variations in the supply of individual agricultural products are no less harmful than the slower changes common to all. The causes being different, the cure is different also.

Experience in America, Canada and Australia, as well as the better-known instance of Denmark, shows that, for some kinds of produce in some conditions, the solution of this problem is to be found in co-operation for "orderly marketing." A brief account of present achievements will be found in Mr. Enfield's book. A more critical description is given in Mr. J. A. Venn's recent work,[1] together with a valuable discussion as to how far foreign and colonial methods are applicable to English conditions.

The main factors in success are stated by Mr. Enfield to be the following:

"1. Each organisation must be concerned with the marketing of a single commodity or commodities closely allied with each other; it must cover a wide producing area, the local units being federated to some central body in order to secure adequate control of the market.

"2. It must be based on binding contracts under which the growers pledge their produce to the association for a term of years.

"3. It must embody the principle of 'pooling,' according to size, grade, or other characteristic, so that, whilst individual growers obtain returns in proportion to the amount and quality of their produce, the control of sales passes from these thousands of growers into the hands of one organised unit."

These principles seem first to have been put into complete operation in America by the California Fruit Growers' Exchange, and have since been widely adopted. In this way, American farmers have supplied the market steadily with certain kinds of produce, and freed themselves from the disastrous effects of a glut and some of the profits of middlemen.

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[1] J. A. Venn, *Foundations of Agricultural Economics*, 1923.

But, as Mr. Venn points out, an organisation which suits American or Canadian growers, chiefly concerned with one crop whether wheat or fruit, or Danes, specialising in dairy produce for export, may not be equally effective for English farmers, raising a variety of things for the home market. Nevertheless, he considers that similar methods might succeed with poultry, eggs and butter, especially from small holdings, and with the produce of market-gardening areas, such as Cornwall, Bedfordshire or the Isle of Ely, or with fruit grown in the Vale of Evesham, in Kent, or in Cambridgeshire. Beginning in this way, "orderly marketing" might be extended to other things as experience accumulated. Here, at all events, no Government help is needed; farmers can, if they will, explore the possibilities for themselves.

There is another side of this problem of pressing importance, the solution of which is even more difficult. All enquirers into the subject have brought out clearly the great difference between the prices paid by the consumer and those received by the producer. The consideration of this question must some day be faced; information is available as to the facts, but few useful suggestions have been made for improvement.

Many difficulties stand in the way. It sometimes pays a retail shop better to sell a small quantity of, for example, vegetables at a high price rather than to handle more stuff at a lower figure. This may result in a fancy price in the shop, when the grower finds his produce almost unsaleable. Bakers and their workmen seem to get too big a share of the price of a loaf, and the milkman who delivers in a London street is much better paid than the highly-skilled man who milks and tends the cows.

Here we touch one of the most difficult problems of the day. It is not only a question of the profits of middlemen and distributors themselves. In sheltered industries, powerful trade unions have exploited their monopolies to obtain wages which, although not too high for the needs of the men, are more than the economic state of the country warrants at the time. The burden is thus thrown on to the unsheltered industries exposed to foreign competition, so that the railway guard and the town milkman get part of their high wages at the expense of the farm labourer. The trouble is not confined to agriculture; any attempt to deal with it must involve the same problem throughout British industry, and somehow the trade unions concerned must be persuaded to face the facts of the economic situation. Farmers alone can do but little, but, if the unions representing the farm labourers and the skilled engineers would realise that their interests were the same as those of their employers, there might be some chance of improvement.

But all this is a matter of common knowledge, and is often in the minds of agriculturalists. The main part of this paper has been concerned with deeper and less obvious ills. The slower oscillations and the long drift of prices which agricultural produce shares with other wholesale commodities are also quite beyond the control of farmers. If anything is to be done, action by the Government and the Bank of England is necessary.

This is not the place to discuss the details of the methods to be adopted. But I wish once more to emphasise the fact that, owing to its long economic lag, agriculture in general, and especially the arable cultivation which the Government desires to encourage, need, even more than urban industry, permanent stability in prices. Manufacturers and farmers have at least the right to ask the Government not to ignore the knowledge which has been won by modern economic science, but to hold an enquiry into the practical question as to how far it is possible, with due regard to all the conflicting interests concerned, to stabilise prices for the benefit of manufacturing industry and of agriculture.

In conclusion, I desire to thank those who have helped me in the preparation of this paper, and, in particular, the staff of the Cambridge School of Agriculture, Mr. Dennis Robertson of Trinity College, Professor Macgregor of Oxford, Mr. C. S. Orwin, and my farm manager, Mr. C. Hodge.

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APPENDIX I

THE NORMAL ECONOMIC LAG

We will first consider the field crops of an arable farm on the usual four-course rotation of roots, barley, seeds and wheat. About half of the roots are mangolds or sugar-beet, carted either to a clamp in the field or away for sale, and not fed off as they grow.

Beginning two years before this is done, 10 loads of farmyard manure, reckoned at 6*s*. a load, are spread on each acre of the ground before it is ploughed for wheat. Carting and spreading cost (say) 15*s*. per acre, so the total is 75*s*. Fifty per cent is exhausted by the wheat, and of the residue 30 per cent, or 22·5*s*., is taken as chargeable to the roots. This is 27 months before the mangolds are lifted.

Perhaps 17*s*. is spent on a spring dressing of artificial manure on the wheat, and 30 per cent of this also, or 5·1*s*., goes to the roots, at a time 21 months before use. Since this 27·6*s*. is about one-sixth of the whole cost of the acre of wheat, one-sixth of the rent, rates, etc., for that year are carried forward to the roots.

Similarly, on the root crop itself, the cost of each operation is entered with the corresponding time of doing it. Since these roots are to be carted away, they are taken as absorbing the whole value of any manure given them. The rest of a year's charges for rent, rates, etc., five-sixths of the whole, is entered at this stage. The total cost comes to 235·6*s.* or £11 15*s.* 7*d.* If 20 tons of mangolds are raised per acre, this is at the rate of 11·8*s.* a ton, or 7*d.* per cwt. consuming value. It gives a total weighted lag of 10·4 months.

In charging farmyard manure at 6*s.* a load, we are bringing in a home-made product itself subject to a lag of perhaps 3 months. Separating this, giving to it a total lag of 27 + 3 = 30 months, and to the remaining cost of spreading, etc., its old lag of 27 months only, we find that the weighted lag of this item is 2·80 instead of 2·70 months. A similar correction is needed for farmyard manure spread on the root crop itself, and the total is 0·79 months, or about 8 per cent of the whole, which is thus raised to 11·2 months.

For the rest of the roots—turnips, swedes, etc., which are fed to sheep on the ground, the manurial values are replaced by the sheep-dung, and are therefore carried forward to succeeding crops. This alters the lag of the root crop from 11·2 to 13·1 months. Moreover, it alters the lag of each crop which follows, throughout the whole rotation, so that two values for each must be calculated, according as the roots which occupied the ground were fed on the spot or carted off—a good illustration of the intricacies of agriculture.

The economic lag of other crops and of stock is calculated in the same manner. It is reckoned in East Anglia that, on the average, half a crop which is sold is disposed of before Christmas and half afterwards. Except where otherwise stated, therefore, it is assumed that the whole crop is sold at Christmas. Details are set forth below.

ROOT CROP (*carted off*).

Mangolds and Sugar Beet.

Years before Sale.	Crop then Grown.	Expenditure.	Cost in Shillings.	Lag in Months.	Weighted Lag.
2	Wheat	Farmyard manure, 10 loads at 6*s.* = 60*s.*; carting, spreading, 15*s.*; total, 75*s.* 30 per cent.	22·5	27	2·7
		Artificial manure, 17*s.*, 30 per cent.	5·1	21	0·5
		Rent and Rates, 30*s.*; charge ⅙	5	28	0·6
1	Roots	Cleaning tillages, 51*s.*; charge ⅓	17	12	0·9
		Farmyard manure, 8 loads, 60*s.*	60	12	3·0
		Artificial manure, 15*s.*; Seed and drilling, 6*s.*	21	9	0·8
		Singling and hoeing	30	6	0·8
		Raising, clamping; beet carted	50	3	0·7
		Rent and Rates, 30*s.*; charge ⅚	25	4	0·4
			235·6		10·4
		Manure correction, say 8 per cent.			·79
		Corrected			11·2

Cost of Mangolds at 20 tons per acre = 11·8*s.* $\frac{142}{20}$ = 7·1*d.* per cwt., say 7*d.*
„ „ at 15 tons per acre, 16*s.* per ton or 9½*d.* per cwt.

ROOT CROP (*fed on field*).

Turnips, Swedes, Kale, etc.

Years before Sale.	Crop then Grown.	Expenditure.	Cost in Shillings.	Lag in Months.	Weighted Lag.
2	Wheat	Farmyard manure, 30 per cent.	22·5	27	5·4
		Artificial manure, 30 per cent. .	5·1	21	1·0
		Rent and Rates, $\frac{1}{6}$	5	28	1·2
1	Roots	Cleaning tillages charge $\frac{1}{3}$ . .	17	12	1·8
		Manures carried forward . .	—	—	—
		Seed and drilling, 6*s*. . . .	6	9	0·5
		Singling and hoeing . . .	30	6	1·7
		Rent and Rates charge $\frac{5}{6}$ . .	25	4	0·9
			110·6		12·5
		Manure correction, say 5 per cent.			·62
		Corrected			13·12

Cost at 15 tons per acre, 7·3*s*. per ton, say 7*s*. = $\frac{84}{20}$ = 4·2*d*. per cwt.
Corrected Mean for both root crops, 12·2 *months*.

BARLEY CROP (*following Roots carted off*).

Years before Sale.	Crop then Grown.	Expenditure.	Cost in Shillings.	Lag in Months.	Weighted Lag.
3	Wheat	Farmyard manure, 10 loads, 60*s*.; carting and spreading, 15*s*.; total, 75*s*.; 20 per cent.	15	39	4·1
		Rent and rates, 30*s*.; say $\frac{1}{12}$.	2·5	32	0·6
2	Roots	Cleaning tillages, $\frac{1}{2} \times \frac{2}{3} \times 51$.	17	24	2·9
		Manures exhausted	—	—	—
		Rent and Rates, 30*s*.; say $\frac{1}{15}$	2	16	0·2
1	Barley	Ploughing	15	14	1·5
		Seed, 20*s*.; cultivations, 5*s*. .	25	9	1·6
		Harvest and thatching . . .	22	4	0·6
		Threshing and marketing . .	18	1	0·1
		Rent and Rates, 30*s*. × $\frac{51}{60}$.	25·5	4	0·7
			142·0		12·3
		Manure correction, say 2·5 per cent.			·3
					12·6

BARLEY CROP (*following Roots fed on field*).

Years before Sale.	Crop then Grown.	Expenditure.	Cost in Shillings.	Lag in Months.	Weighted Lag.
3	Wheat	As above Manure	15	39	3·2
		Rent and Rates . .	2·5	32	0·4
2	Roots	Cleaning tillages as above . .	17	24	2·3
		Farmyard manure, 8 loads, 48*s*.; Spreading &c., 12*s*.; Total, 60*s*.; 50 per cent. . . .	30	24	4·0
		Artificial manure, 15*s*.; 50 per cent.	7·5	20	0·8
		Rent and Rates, 30*s*. × $\frac{11}{28}$.	12	16	1·1
1	Barley	Ploughing	15	14	1·2
		Seed, 20*s*.; cultivations, 5*s*. .	25	9	1·3
		Harvest, etc.	22	4	0·5
		Threshing, etc.	18	1	0·1
		Rent and Rates	15·5	4	0·3
			179·5		15·2

Manure correction, say 4·3 per cent. ·65

Corrected Mean, 14·3. 15·85

OAT CROP.

As Barley, except that seed costs 15*s*. instead of 20*s*.
After roots carted off—Economic Lag, 12·7 months.
After roots fed on field—Economic Lag, 15·4 months.
Corrected Mean, 14·5.

SEEDS HAY CROP (*Roots carted off*).

Years before Sale.	Crop then Grown.	Expenditure.	Cost in Shillings.	Lag in Months.	Weighted Lag.
3	Roots	Cleaning tillages, $\frac{2}{3} \times 51 \times 0·3$	10·2	36	4·4
		Manures exhausted	—	—	—
		Rents and Rates, 30*s*. × $\frac{1}{25}$.	1·2	28	0·4
1	Seeds	Seed, 20*s*.; Cultivating, 5*s*. .	25	9	2·7
		Haymaking	18	6	1·3
		Rent and Rates, 28·8 . . .	28·8	4	1·4
			83·2	Lag	10·2

No correction.

SEEDS HAY CROP (*Roots fed on field*).

Years before Sale.	Crop then Grown.	Expenditure.	Cost in Shillings.	Lag in Months.	Weighted Lag.
3	Roots	Cleaning tillages	10·2	36	3·5
		Farmyard manure, 8 loads, 60*s*. × 0·3	18	36	6·1
		Artificial manures, 15*s*. × 0·3 .	4·5	32	1·4
		Rent and Rates, 30*s*. × $\frac{1}{4}$ . .	7·5	28	2·0
1	Seeds	As above, Seed &c.	25	9	2·1
		Haymaking	18	6	1·0
		Rent and Rates	22·5	4	0·9
			105·7		17·0

Correction, 2·5 per cent. 0·4

Corrected Mean, 13·8. 17·4

WHEAT CROP (*Roots carted off*).

Years before Sale.	Crop then Grown.	Expenditure.	Cost in Shillings.	Lag in Months.	Weighted Lag.
4	Roots	Cleaning tillages, 20 per cent. of $\frac{2}{3} \times 51$	6·8	48	2·0
		Manures exhausted	—	—	—
		Rent and Rates, 30*s*. (say) $\frac{1}{30}$.	1	40	0·2
1	Wheat	Farmyard manure, 12 loads, 72*s*.; Carting and spreading, 15*s*.; Total, 87*s*.; Charge $\frac{1}{2}$	43·5	15	4·0
		Ploughing	15	14	1·3
		Seeds, 15*s*.; Drilling and cultivations, 5*s*.; Nitrate of Soda, 18*s* ; $\frac{1}{2}$	29	12	2·1
		Harvest and thatching . . .	22	4	0·5
		Threshing and marketing . .	18	1	0·1
		Rent and Rates, 30*s*.; $\frac{29}{30}$ . .	29	4	0·7
			164·3		10·9
		Correction + 0·64 = 6 per cent.			0·6
					11·5

WHEAT CROP (*Roots fed on field*).

Years before Sale.	Crop then Grown.	Expenditure.	Cost in Shillings.	Lag in Months.	Weighted Lag.
4	Roots	Cleaning tillages, 20 per cent of $\frac{2}{3} \times 51$	6·8	48	1·8
		Farmyard manure, 8 loads = 48*s*.; Carting, etc., 12*s*.; Total = 60*s*.; 20 per cent. = 12*s*.	12	48	3·2
		Artificial manure, 15*s*.; 20 per cent.	3	44	0·7
		Rent and Rates, 30*s*. (say) $\frac{1}{5}$.	6	40	1·3
	Wheat	As above	43·5	15	3·6
			15	14	1·1
			29	12	1·9
			22	4	0·5
			18	1	0·1
		Rent and Rates, 30*s*. × $\frac{4}{5}$ . . .	24	4	0·6
			179·3		14·8
		Correction, 0·78 = 5·2 per cent.			·8
					15·6

Corrected Mean, 13·6.

GRASS ON PERMANENT PASTURE.

Summer season May to September, the mean being mid-July; 6 cwt. of basic slag per acre may be spread every third year. If some fields are treated each year, this is equivalent to spreading 2 cwt. on each field each year.

	Cost in Shillings.	Lag in Months.	Weighted Lag.
2 cwt. slag in October	4	10	1·05
Fences and ditches in December . . .	2	8	·42
Harrowing and rolling in February . . .	2	6	·32
Rent and Rates, May and November, mean = August, so no lag	30	—	—
	38		1·79

The total cost per acre of (say) 40*s*. may be apportioned.

	Cost. Total.	Cost. Per month.	Lag.
Summer grazing, 5 months	25	5	1·8
Autumn ,, 3 ,, ...	10	3·33	5
Winter ,, 4 ,, ...	5	1·25	7

MEADOW HAY (*consumed in January*).

	Cost in Shillings.	Lag in Months.	Weighted Lag.
2 cwt. slag in October	4	15	1·05
Farmyard manure, 10 loads at 6*s*. every fourth year	15	12	3·16
Carting and spreading, 15*s*. . . .	4	12	·84
Harrowing and rolling in February . .	2	11	·40
Fences and ditches	2	11	·40
Haymaking and repairs of machines . .	15	6	1·58
Rent and Rates	30	5	2·63
Deduct value of grazing aftermath . .	—15	— 3	—·80
	57		9·26
Correction for lag of manure = 9 per cent.			·79
Corrected lag =			10·05

SHEEP. I. BREEDING FLOCK. 8 EWES GIVING 12 LAMBS.

	Cost.	Food Lag.	Sheep Lag.	Total Lag.	Weighted Lag.
Lambs.					
4 ewes, 2 summer months food, 8*d*. week each	23	8	11	19	·52
Extra labour, rent, rates, cartage, &c., 2*s*. each a month	16	—	11	11	·21
4 autumn months on pasture, 4*d*. each per week	23	5	8	13	·35
1 winter month with extra food, 1*s*. each per week	16	13	6	19	·30
Extra labour, rent, rates, cartage, &c., 2*s*. each per month	8	—	6	6	·02
4 ewes with 6 lambs, 3 winter months, food	84	15	4	19	1·90
Extra labour, &c.	24	—	4	4	·11
2 spring months	56	6	1	7	·47
Extra labour, &c.	16	—	1	1	·02
Hoggets.					
2 ewes, 2 summer months, 8*d*. each per week	11·5	8	17	25	·34
Extra labour, rent, rates, cartage, &c., 2*s*. month	8	—	17	17	·16
4 autumn months on pasture, 4*d*. week	11·5	5	14	19	·26
1 winter month with extra food, 1*s*. week	8	13	12	25	·24
Extra labour, cartage, &c.	4	—	12	12	·06
2 ewes with 3 lambs, 3 winter months food	42	15	10	25	1·25
Extra labour, &c.	12	—	10	10	·14
2 spring months food	28	6	7	13	·43
2 summer months food	28	8	5	13	·43
Extra labour, &c., 4 months	16	—	5	5	·10
3 hoggets, 4 autumn months food 1*s*. 4*d*. week	68	12	2	14	1·13
Extra labour, &c.	24	—	2	2	·06
Young Ewes.					
2 ewes, 2 summer months	11·5	8	23	31	·42
Extra labour, cartage, rent, rates, etc., 2*s*. each a month	8	—	23	23	·22
4 autumn months on pasture, 4*d*. week	11·5	5	20	25	·29
1 winter month with extra food, 1*s*. week	8	13	18	31	·09
Extra labour, &c.	4	—	18	18	1·55
2 ewes with 3 lambs, 3 winter months, food	42	15	16	31	·23
Extra labour, &c.	12	—	16	16	1·13
4 months spring and summer food	56	7	10	17	·19
Extra labour, &c.	16	—	10	10	1·43
3 young ewes, 10 months food	86	9	5	14	·36
Extra labour, &c.	60	—	5	5	—
Total Cost	.842 = £42 2*s*.			Economic Lag =	14·81 months

Manure Lag mean of roots and seeds = 3·9 per cent. Take one-third of this = 1·3 per cent. 0·19

SHEEP. II. STORES BOUGHT IN AUGUST, KEPT 6 MONTHS.

	Cost.	Food Lag.	Sheep Lag.	Total Lag.	Weighted Lag.
Cost of each store in August . .	60	—	6	6	3·37
Food for 6 months, 1*s*. 4*d*. week .	34·7	11	3	14	4·54
Labour, cartage, rates, &c., 2*s*. a month	12	—	3	3	·34
	106·7 = £5 6*s*. 8*d*.				8·25
				Correction	·05
					8·30

If on a farm one-quarter of the sheep sold are bought as stores and three-quarters bred, we get :—

1	Lag 8·3	. . . . Weighted lag	2·1
3	15·0	. . . .	11·2
4		Average economic lag of sheep trade =	13·3

MILK.

In dealing with milk production, we have to consider two conditions differing somewhat in grass and arable countries. Let us first take a grass farm.

The costs are divided into two groups, the cost of feeding and otherwise supplying the existing dairy herd, and the cost of rearing that number of calves needed to replace old cows drafted out. Let us take the rearing first. That part of the food which is home grown is itself subject to lag, and this must be added to the time before the calf becomes a heifer in milk.

	Cost.	Food Lag.	Milk Lag.	Total Lag.	Weighted Lag.
Calf.					
1st month, milk and extras . .	35	6·0	30	36	2·79
Rest of first year food . .	100	5·0	24	29	6·43
Labour, rent, rates, etc. . .	80	—	24	24	4·57
Yearling.					
Year's grazing	156	4·0	12	16	5·53
Heifer.					
6 months' grazing with extra food .	80	4·0	3·5	7·5	1·33
	451*s*. = £22 11*s*.				20·65

Correction for manure which enters into the lag of home-grown food = ·15

Corrected lag of rearing = 20·8

42 *Cow Dairy.* At any time 7 cows will be dry or suckling calves, leaving 35 in milk. 9 calves must be reared each year to maintain the dairy.

	Cost in £.	Food Lag.	Milk Lag.	Total Lag.	Weighted Lag.
Dry and Suckling Cows.					
4 in winter, 3 in summer	33·7	4·0	2·5	6·5	·25
Charge the 4 with labour, rent, rates	10·3	—	− 1·0	− 1·0	− ·01
Cows in milk (35), food at 6*s*. week	546	4·0	1·0	5·0	3·12
Extra labour of cowman, 1*s*. 6*d*. per cow per week	136·5	—	1·0	1·0	1·56
Labour, rent, rates, etc., in winter	148	—	− 2·5	− 2·5	− ·42
	874·5		Lag		4·50
Cost of rearing 9 calves	203		*Correction*		·10
Total costs	£1,077·5				4·60

The milk produced one month is paid for during the next, so the lag is only 1·0 month. Rent, not paid till May and November, has a negative lag.

We must now combine the results. Of the total costs, £875 has a lag of 4·50 months and £203 a lag of 20·8. Properly weighted, these figures give a combined lag of 7·65 months.

When milk is produced on an arable farm, the cost of rearing calves seems rather higher, and the home-grown food has a higher lag. The effect of these differences is to make the final economic lag 8·2 months instead of 7·65.

BULLOCKS.

The business of fattening bullocks is carried on both on grass and on plough land. For bullocks bred and fattened on an arable farm, we get some such figures as follow:

	Cost.	Food Lag.	Bullock Lag.	Total Lag.	Weighted Lag.
Keep of dry cow for 2 months in winter food	80	5·7	30	36	3·60
Labour, rent, rates, etc.	14	—	30	30	·53
Calf.					
First month, milk, 30*s*.; extras, 5*s*.	35	7	28	35	1·53
Rest of first year—food	100	6	22	28	3·50
Labour, rent, rates, etc.	80	—	22	22	2·20
Yearling.					
Year's grazing, 4*s*. week	208	5	10	15	3·90
Extras	20	—	10	10	·25
Fattening Bullock.					
20 weeks at 9·2*s*. per week food	184	6	2	8	1·84
Extra labour, rent, rates, etc. at 4*s*.	80	—	2	2	·20
	801*s*. =£40·1				17·55
Manure correction, say 0·8 per cent.					·14
Corrected lag =					17·7 months.

PIGS.

ON ARABLE LAND.

	Cost.	Food Lag.	Pig Lag.	Total Lag.	
$\frac{1}{10}$ cost of keeping sow:					
4 months at 3*s*. a week . .	5·1	6	10	16	·76
2 ,, ,, 6*s*. ,, . .	5·1	8	7	15	·71
1 *Pigling*.					
3rd month, 2 lbs. food a day, half home-grown, quarter from waste	5	5	5·5	10·5	·49
4th month, 3 lbs. . . .	7·5	5·5	4·5	10·0	·70
5th ,, 4 ,, . . .	10	6	3·5	9·5	·88
6th ,, 5 ,, . . .	12·5	6·5	2·5	9·0	1·04
7th ,, 6 ,, . . .	15	7	1·5	8·5	1·18
8th ,, 7 ,, . . .	17·5	7·5	0·5	8·0	1·30
Labour, rent, rates, carting, &c., spread over the whole time (say)	30	—	—	5·0	1·39
	107·7				8·45
				Correction	·17
					8·62

ON GRASS LAND.

Most of the food—meal, whey, &c., is bought, and some credit is given; the net food lag is negligible. This brings down the average economic lag of pigs on grass land to 3·9 months.

POULTRY AND EGGS.

As in milk production, the costs fall into two groups—in this case, the cost of feeding and tending the fowls, and the cost of rearing chicks.

On grass land the food lag will be short, as much of it is bought. Poultry and eggs form so small a fraction of the total output that I have made no elaborate investigation of the lag, which, on the grass farm, I estimate roughly at about 3 months. Where systematic chicken farming is carried on, a more complete inquiry would be necessary.

APPENDIX II.

THE CORRECTION FOR CHANGING PRICES.

If prices of supplies and other costs of production are constant throughout the time of cultivation the total cost c is proportional to the time t or

$$c = at,$$

where a is a constant.

If, on the other hand, prices change at a constant rate b as time goes on, we must write

$$c = at + bt^2.$$

Hence $$dc = (a + bt)dt.$$

Now the weighted lag of each operation may be taken as an element in l, the total lag of the crop, and written as dl. It is found by multiplying together the time and the element of cost dc, or

$$dl = tdc.$$

Therefore the whole weighted lag is found by integrating this expression, and the average economic lag, l, by dividing this integral by that giving the total cost. This is here done once for all at the end, instead of item by item as in the tables; the final result is, of course, the same. Hence

$$\begin{aligned} \bar{l} &= \int_o^t t\,dc \div \int_o^t dc \\ &= \int (at + bt^2)dt \div \int (a + bt)dt \\ &= (\tfrac{1}{2}at^2 + \tfrac{1}{3}bt^3) \div (at + \tfrac{1}{2}bt^2) \end{aligned}$$

so that we get finally

$$\bar{l} = t\,\frac{\frac{1}{2}a + \frac{1}{3}bt}{a + \frac{1}{2}bt}.$$

This gives the economic lag of a farm per month at the moment, if the cost of cultivation is a, and the rate at which at the moment the cost is changing per month is b.

Now to take a practical example. Let us suppose that a year ago the costs were double what they are now.

Then $a + bt = 2a$ and $bt = a$. The general expression then becomes

$$\begin{aligned} \bar{l} &= t\frac{\frac{1}{2} + \frac{1}{3}}{1 + \frac{1}{2}} = \tfrac{5}{6} \times \tfrac{2}{3}t \\ &= \tfrac{10}{18}t. \end{aligned}$$

Reckoning in months, for one year $t = 12$, and the lag is

$$\bar{l} = \tfrac{10}{18} \times 12 = \tfrac{20}{3} = 6\tfrac{2}{3}.$$

instead of the 6 months which it would be if prices were constant. This is a change of 0·67 in 6 or 11 per cent.

On the other hand, if a year ago costs were only half what they are now, $a + bt = \frac{1}{2}a$, which gives $5\frac{1}{3}$ months for the economic lag—a decrease of 11 per cent. on the original 6 months.

Now let us consider the effect of a more usual and moderate rate of change—say 1 per cent. a month, or 12 per cent. a year, when again t is 12, and $bt = \frac{12}{100}a$.

The general equation then becomes

$$\begin{aligned} \bar{l} &= t\frac{\frac{1}{2} + (\frac{1}{3} \times \frac{12}{100})}{1 + (\frac{1}{2} \times \frac{12}{100})} = t\frac{\frac{1}{2} + \frac{4}{100}}{1 + \frac{6}{100}} \\ &= \tfrac{54}{100} \times \tfrac{100}{106}t = \tfrac{54}{106}t. \end{aligned}$$

or, for the 12 months considered,

$$\bar{l} = 12 \times \tfrac{54}{106} = 6{\cdot}11$$

that is, an increase of 1·8 per cent. on the 6 months of constant prices.

This result can, of course, be obtained from the first one. A fall to half or a rise to double value in one year is a change of 50 per cent. on the larger or of 100 per cent. on the smaller figure; that is, of 75 per cent. on the middle value. A change of 12 per cent. per annum would therefore involve a correction of

$$11 \times \tfrac{12}{75} = 1{\cdot}8 \text{ per cent.}$$

on the economic lag as before.

Hence for each 1 per cent. fall per month in the costs of production, we may add 1·8 per cent. to the economic lag.

In Diagram I, the slope of the rising curve is sensibly constant from 1914 to 1920 at the peak, the increase being 150 in 6 years, 25 per cent. of the 1914 value per annum, or just over 2 per cent. per month. This means that, for the beginning of these years, the economic lag must be diminished by 0·52 months, so that it becomes 13·25 months instead of 13·77.

At the end of the period, the same rise of 25 points per annum is only 10 per cent. of the then value of 250 (taking 1914 as 100). This is $\tfrac{10}{12} \times 1{\cdot}8 = 1{\cdot}5$ per cent. on the lag, or − 0·21 month, so that the corrected lag is 13·56 months. Intermediate points may be corrected proportionally.

From 1920 to 1921 the fall is 38 in the year, or 16 per cent. on the mean value of 238. This is 1·33 per cent. per month, and means a correction of + 2·4 per cent. so that the 13·77 months become 14·10.

During the year 1922–3 costs on the average fell by 15·9 points, or 9·6 per cent. on the mean value of costs during the year. The correction is therefore 1·44 per cent., and the corrected lag 13·97, or say 14·0 months.

The second costs curve in the diagrams has been adjusted for this correction along its length before being shifted to the right. It therefore shows from point to point the fully corrected costs of production of the produce represented by the point on the price curve in the same vertical line.

AGRICULTURE IN THE COUNTY OF CHESTER.

Cheshire has lately passed through one of those severe ordeals which, fortunately, agriculture does not often have to suffer. Since the cattle plague decimated the herds more than sixty years ago, the county has had no more terrible trial than the wholesale wiping out of dairy stock occasioned by the visitation of foot and mouth disease in 1923–24. It used to be held by the older agriculturists that the type of animal taken by the former calamity was larger, wealthier and finer than that which came in as replacement, and that the class usually kept in the county has never quite come up to the quality and style of those which previously occupied the pastures. Be this as it may, it is to be hoped that the latest replacement, which is being made with remarkably little loss of time, may mean a quick recovery in that heavy production of cheese and milk which has always been associated with the county.

Climate, Soil and Situation.

Cheshire is well favoured in these respects. Its cultivated area extends to 650,000 acres, by far the larger portion of which comprises a large plain, 200 to 250 feet above sea-level, and a big proportion of this is adapted for a varied kind of husbandry. The central portion is more or less mixed in character, but whether on the boulder-clay drift, or the lighter type of soils on the "middle sand," it is fit for either plough or pasture. A large part of the southern end of the county is too strong and too wet in winter to go under cultivation, but it is capable of producing a heavy pasture and of carrying a large cow population during the summer.

The Wirral peninsula is akin to the central plain in the character of its farming, whilst on the east of it lies the more elevated district of Delamere Forest, well known as a centre where early potato growing has been brought to the point of a speciality, and there land is still in course of reclamation in some places, gradually coming into a system of cultivation which gives a prominent place to the early potato in the rotation. The least fertile portion of the county is a rather narrow but high tract, in width about 8 miles at its broadest part, where the Lower Carboniferous rocks cause a sharp difference both in physical feature and in class of soil from the adjacent Trias. This area extends all along the eastern boundary, beginning a few miles south of Congleton, and forming the Macclesfield, Disley, Marple and Stalybridge country, where the struggle with nature is strong and the rewards in the shape of yields very much less than in the more favoured parts. Good examples of progressive farming may, however, be found here and there in this somewhat uncompromising region fostered by proficient men, and by the nearness to the coal measures and their industrial centres, which mean a ready retail market. The characteristics of part of this district as a stock-raising one will be referred to later.

It was largely owing to the adaptability of the soil that Cheshire never felt the depth of agricultural depression extending from 1879 to about 1900. The fact that the land was, in nearly the whole county, fairly deep, or at any rate capable of being materially deepened by cultivation or, where it was not so well adapted for the plough, was suitable for specialising in dairy products, gave the county a much greater chance of adaptation to meet changing conditions than was vouchsafed to some. Cheshire land has, too, a remarkably good capacity for drought resistance.

The county is highly favoured in the way of markets for all kinds of agricultural produce. Within the county boundary are considerable works connected with salt mining, and the chemical industry at Northwich, Middlewich, and Frodsham; the manufacturing area of Stockport, and Ashton-under-Lyne, the Macclesfield market, and, just outside the county, the large produce-absorbing markets of Liverpool, Manchester, and their adjacent towns. The Potteries lie rather farther afield, but take a considerable quantity of farmers' material from the south-eastern districts. In the Wirral peninsula, and again in the north of the county large residential populations keep pushing steadily southwards, and these have definitely influenced the type of farm management which caters for their particular needs.

FARMS, TENURE AND EQUIPMENT.

The practice of leasing for lives which was at one time very general in Cheshire had become practically obsolete in the early days of the nineteenth century, and by that time most of the old leases had run out. Those for terms of twenty-one, or fourteen years which held on somewhat later were beginning to be shortened about the year 1810, and to be replaced by terms not exceeding seven years in duration. At the present day the lease itself is rarely met with and the year to year form of tenure is the prevailing one. Farms do not, however, change hands with any special frequency on account of a short term. The demand for them is keen, and they would let readily, but the custom prevailing on the larger estates—prior to the war at all events—was for the farm to remain in the family; son or nephew or suchlike relation following the father and, as they in most cases had worked on the farm and possessed an intimate knowledge of it, a satisfactory security of tenure was established without any formal documentary bond. The landlord felt that he had as tenant one whose family had always farmed pretty well and done their duty reasonably to the estate; and the tenant on his part, felt that he was developing and keeping together something that his own people had begun, and that it was his duty to keep up the good repute, as land cultivators, of the family. Ideas such as these have usually a stronger practical result in effecting the very necessary security on which all successful farming has to depend, than the efforts of written attempts to describe the respective obligations of the parties or to cater for their needs by statutory enactments.

The widest construction has usually been placed on courses of cropping and their bearing on the principles of good husbandry. The sale of practically all produce from the land—even the root crops—is tolerated, and rightly so, for in taking a survey of the county after a period of five to ten years has elapsed it is not possible to assert, as time goes on, that the general level of the farming has deteriorated.

Cheshire farms, both mixed and grass, run small in acreage. On the arable land there is both adaptability and depth which means that the turnover is large enough to support a family on 80 to 150 acres. On the purely grass farms the readiness with which they produce cheese or milk, and the heaviness with which they may be stocked, bears in the same direction and enables a good living to be made on an area which would prove too small in a less favoured region, though these run rather larger than the mixed farms. Rents are substantial, but are not unduly high when the character and situation of the land are taken into consideration. Sinclair estimated that in 1815, Cheshire would average not less than 30*s*. per statute acre, although there were some farms in the immediate neighbourhood of the rapidly increasing towns of the Lancashire border that let at £6 to £8 per acre. At the present time the general rent for the largest proportion of the county will average about £2 and, in the event of a farm coming vacant and being put up to public tender, such a rent would be readily forthcoming.

With small sized-holdings it is perhaps difficult to avoid small fields, but even making every allowance for this there is no doubt that very great improvement could be brought about by reducing the number of enclosures, levelling down some of the worthless banks, piping and filling in some of the ditches. The soil of Cheshire is too valuable to be taken up by rough and crooked fences, and the amount of waste that always goes with these; most progressive men straighten or level down old fences and banks and remove hedgerow trees, which are here as great land-robbers as they are on other agricultural tracts. The writer has more than once seen these carefully planned improvements, carried out with judgment and done at the proper season, without being unduly rushed, made to pay for their cost by added crop-yield and cultivating facility, in the next season's returns.

In regard to farm buildings, these may be in general described as substantial. Brick is by far the commonest material used in the main construction of both houses and buildings and there is usually a fairly liberal area of paved or macadamised roadway in and about the homestead to ensure a hard and dry passage for workers and cattle during the wet weather of winter when all the stock are housed and are turned out to water, usually in the yard, twice a day. This cobble paving is a great help in promoting the general cleanliness so necessary on farms where milk is a product.

The shippons are generally those with the stalls running across the main building. Frequently one sees three double sets of cows—about eight in each set—arranged to stand head-to-head so that one fodder bin or feeding passage serves a double set, and in this way one building may contain about fifty head of stock. Those shippons erected within the past twenty years usually depart from this type of arrangement, the stalls being placed in the line of the building's greatest length, an arrangement tending towards easier feeding, greater circulation of fresh air and more efficient supervision. An overhead hay-loft is frequently met with, and if giving sufficient head room and openings for ventilation, is not to be condemned, making for the warmth and comfort of the animals.

On some estates, for example in the Middlewich and Minshull Vernon neighbourhood, the farm premises and houses are exceptionally good both in character of materials and in spaciousness. The covered yard is practically absent in the county; this may be accounted for, perhaps, by the fact that the rearing of young cattle has always been looked upon as a side line, and the fattening of bullocks as quite out of the general run of the style of farming, for both of which the covered yard is specially useful. The covered manure shed, too, is very seldom seen. Considering the large amount of manure made every winter and needing daily removal from the stalls it would seem as if this convenience was almost as necessary and economic as the shippons themselves, but, for some reason or other it has been only infrequently provided. It is quite otherwise with Dutch barns for preserving corn and hay crops; these are now becoming almost universal and in cases where they are put up tenants are prepared to pay an annual sum as interest on the outlay incurred. In the south of the county the commodious dairy fitted up with facilities for cheese-making, and generally with a feed-pipe for whey to be run off direct to the piggery department, is a usual feature.

Cottages attached to the holding are, unfortunately, not very plentiful, but it is usually possible to have one senior man, at least, within fairly close hail of the shippons during the time cows are housed so as to be available in case of emergency or illness.

AGRICULTURAL IMPROVEMENT.

It is difficult, even for those with life-long agricultural knowledge, fully to realise the enormous influence that land drainage has exercised in agriculture. Cheshire lands are particularly sensitive to this mode of improvement and, as the soil repays the expense and trouble, drainage is always resorted to as a work to be done whenever opportunity occurs in repair or improvement of any drains that may be in need of looking after. Expensive as the process is at the present day, and long-deferred as the repayment of the outlay may be, it is noteworthy and significant that drain-pipes are beginning to be seen in the fields again after the general suspension during war-time.

During the concluding part of the eighteenth century the benefits due to drainage were definitely recorded in the way of making open cuts or gutters in rushy pastures. After this time the gradual evolution towards modern systems followed the usual course, beginning with faggot, turf, brick, and other available local material and leading up to the horse-shoe drain tile which gave way to more modern makes about 1840-50. Many of these horse-shoe tile drains, though 80 years old, may be found in good working order to-day on strong, firm clay land where they have been carefully laid on slate or flat tile seatings. During the period of agricultural activity ending in the seventies of last century a large part of the county was "Government drained," but as, in most cases, the pipes were laid too deep both they and their cost were buried beyond recovery; instances can still be seen where fresh drains have been put in at a later date some 12 to 15 inches above the others. This is a matter of some interest in the history of agricultural improvement, because nearly fifty years earlier than the first-named and mistaken step was taken two, at least, of the recognised authorities had already given their opinion that if ever Cheshire came to be fully drained the channels would have to be rather shallow, the character of the soil being such as to make deep drainage useless.

The present practice is to go about 20 inches in depth, and one rod of 7 yards apart; it is now an agreed opinion, too, that any pipe less than a three-inch one is too small to keep free from silting when used as a minor drain.

The "improvement" due to marling has been put into force extensively in Cheshire, as witness the innumerable marl pits scattered throughout most of the stronger land areas. Many tons must have been wasted and much valuable labour and time taken up in getting and applying this expensive and doubtfully beneficial material, when it was spread over the stiffer clays. On the lighter soils such as Delamere has in abundance, the presence of a deposit of good shale marl is a better proposition, and instances can still be found where these soils are distinctly benefited during reclamation and improvement by a conveniently situated layer of marl which improves the texture of the light, open and rather "mossy" soil, helping to bring it into a workable condition, always provided that the distance of carting and cost of getting does not overload the process. The older opinion that marl tends gradually to find its way downward in soils is probably correct as evidenced by thin bands of it some 15 or 16 inches below the surface that have been observed in light sandy or loamy lands known to have been marled in the years 1840 to 1855.

Lime has long been known and recognised as an outstanding necessity for producing the best results in farming after the removal of surplus water has been provided for. Nearly everywhere it is now included in the rotation of the mixed Cheshire farms, usually put as near the root crop and as far away from the potato crop as possible. Autumn application to seeds or to land intended for an oat crop in which seeds are to be laid down is also an accepted procedure in some places. In 1800 lime was used to a considerable extent in the eastern portion of the county where it could be obtained at a fairly cheap rate from Derbyshire, and was usually applied after it had been made into a compost heap, a practice now seldom followed in general mixed husbandry. Lime is not commonly applied to grass land except as a means of helping the clovers when the pasture is first laid down, but there is undisputed evidence that light dressings of lime are of very material benefit, even on the good-quality grass where it is heavily stocked and abundantly provided with nitrogen and organic material. The poorest parts of Cheshire lying on the carboniferous sandstones and grit respond remarkably to dressings of lime, but the practice is resorted to with caution owing to the expense of carting in these hilly districts, and the initial value of the land itself which will only bear a moderate expenditure. Within the county there is a small outcrop of limestone. This occurs above Astbury on the south-eastern borders, and the kilns here used to supply a very considerable amount of lime for local agriculture but have, during modern times, given place to the larger supply from the Buxton district. A good deal of use is now made of the limes produced as by-products of the chemical industry, soap and alkali works of Warrington, Northwich, Middlewich, and similar centres. Twenty years ago good, pure carbonate of lime in an easily handled form could be obtained for the cost of carting it away or, at any rate, for a merely nominal figure. Demonstration has proved the usefulness of this material and has broken down the strong prejudice there was against it so that it now takes its place as one of the sources from which lime can be normally supplied for use on the land.

Mention of Cheshire farming is obviously incomplete without bringing in the subject of bones. The agriculturist of three generations ago lamented the fact that they were neither plentiful nor low priced, and the farmer of the present time, though he may not have the same justification as to scarcity, still finds that this type of fertiliser is rather dearer per unit than many other fertilisers of the same character. This is accounted for by the strong demand that there is for bones. The reason for their particular suitability for dairy pastures may be somewhat obscure, but they do, as a matter of fact, appear to give a better colour to the herbage, a lasting, improving effect, and possibly a quicker result in Cheshire soils than in some others. Practice steadily inclines to-day towards finely ground and steamed bone flour as against the coarser forms of raw bones formerly in use. Bone flour is likewise commonly used for a winter dressing for clover and ryegrass mixtures, and in some cases as a phosphatic dressing for the swede crop.

The large amounts of dung produced from cows in winter and the heavy stocking of pastures in summer with animals that are rather highly fed on purchased foods renders the ordinary Cheshire farm rich in its home supply of nitrogen for fertilising purposes. In point of fact it is not stretching ideas too far to say that a farm of strong land, heavily stocked, needs little or nothing but phosphates—bones or slag—and lime. On the lighter soils, with little permanent grass, potash is required and on all ordinary mixed-soil farms it is the invariable rule that the mangold crop gets a fairly liberal supply of available nitrogen, and some kainite or sulphate of potash.

GENERAL DAIRYING.

Dairying strikes the main note throughout the whole of the county, on all types of soil, and on all-sized farms with the exception of those lying along the northern margin, where produce for town purposes holds the field. Even in places rather remote from centres of distribution or market, milk is produced in fairly large quantities, and forms the basis of the general scheme of husbandry. One of the chief reasons for this is that where land is not in permanent grass it is worked on a system of fairly long leys—say from 4 to 6 years, or rather more—and then broken up for a course of cultivation and cropping which gives the land a rest from stock, breaks the chain in the life history of parasites which affect stock on old pastures, and generally increases the fertility and the health and number of stock that can be kept. The value of this mode of alternate tillage and pasture is frequently overlooked in other parts of Britain, where it could quite easily and with great advantage be put into operation as a means of increased crop production and better health in animals. Agricultural teaching, doubtless, has frequently been rather in the opposite direction, laying down the principle that when grass was seeded it should remain untouched and that breaking up was akin to sacrilege and was bound to be attended with failure and loss. It may easily be that in another 20 years or so, better understanding on the matter of grass-treatment may result in a more general adoption of well-managed, semi-permanent grass as a feature in other districts where conditions of soil and climate are favourable. The system was known and practised in Cheshire as far back as the time when restrictions on the amount of arable land were a customary clause in farm leases. It is, further, recognised that many grass lands tend to become too closely set—or "hidebound," to use a local term—for the best grasses and clovers to flourish as they should do, and a system of alternate cropping and laying down is the best remedy for again bringing into being a profitable herbage.

Cheshire milk finds its way northward usually, most of the central and eastern parts of the county providing a supply for the Manchester district, and those large towns immediately adjoining it. A few years ago—1915—it was found that about one-half of the total milk of the county found its market there, whilst of the remainder about three-fifths went to Liverpool, and the Wirral peninsula, and two-fifths southward for London, Wolverhampton and Birmingham.[1]

South of a line drawn due east from Chester to Middlewich, an overwhelming proportion of the land is permanent grass, the soil being either strong clay or clay loam. It is in this area that the manufacture of Cheshire cheese is principally carried on. Nearly the whole of the production is made on the early ripening system, and is sold, very soon after making, for consumption by the large industrial populations of the north. Cheese-making is generally considered to be more profitable than milk production, though there is more of the latter in this area since the introduction of motor lorries for collection. Cheese-making involves a very large amount of labour for the farmer's wife and daughters; it is consequently considered advisable in some cases to produce milk with less labour and with less profit than would be associated with cheese-making.

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[1] *Journal of R.A.S.E.*, Vol. 76, p. 105.

Very remarkable results are obtained by many of the cheesemakers in the number of cows and pigs maintained and the value of the food produced on a given acreage of purely grass land or land with only, say, 10 to 20 per cent. under the plough. On the smaller farms it is quite common to find cows kept in the proportion of three to every five acres, and on the larger farms of 200 acres and upwards of one cow to every two acres. In the case of the smaller farms very large quantities of purchased foods are used, both summer and winter, to maintain the very heavy head of stock. But amongst the most progressive farmers on the larger farms immensely heavy stocks are now being kept entirely on the grass from May to October, and during the winter almost entirely on the hay produced on the farm, purchased foods alone being used more liberally when the cows begin to calve, say from February till the end of April. This result is achieved by liberal dressings of basic slag, which greatly increases the grazing value in the late summer and autumn and by very heavy applications of farm-yard manure on the land intended for hay.

Pigs are naturally associated with cheese-making and are kept and fattened in very large numbers on the whey and purchased meals, the resulting manure being of a high value. Recent research has shown the value of whey in pig feeding, and there can be no doubt that the results achieved by Cheshire cheese-makers bear this out in practice, and that there is some profit in pigs fed on whey, even in much depressed markets.

It is an axiom that land under the plough produces more food units per acre than does grass land, but it is a question whether much arable land, excepting that which is particularly suited to potatoes, produces a higher money value of food per acre than does the best Cheshire grass devoted to cheese-making. There is no doubt that climate is largely responsible for the results which it is possible to obtain. August is almost always a wet month, and the Cheshire pastures are then in many years green and full of grass when the south of England is burnt up, and, in addition, the autumns are usually mild with little frost.

SYSTEMS OF CROPPING.

As already indicated, the widest possible latitude is given in designing rotations to meet the requirements of the holding or the means of disposal of its saleable material. From the purely grass and cheese farm with no ploughland whatsoever to that which is practically a large market garden there are numerous grades and varieties of cultivation. Besides the temporary pasture above mentioned there are some other crops which usually show up as a special feature in the general scheme of agriculture. The mangold is one of the most prominent of these; large yields are normally obtained even on some of the lighter lands owing to their being heavily dressed with farmyard manure, ploughed in during winter, furnishing abundant organic matter followed by liberal top-dressings of artificials at seeding time and a further assistance, such as 1½ cwts. of nitrate of soda, and 5 cwts. salt about singling time. On some farms where the management is keen and thoroughly ready to make use of every opportunity, mangolds are sometimes brought in as a catch crop after early potatoes are off; the young plants are grown in a seed bed closely adjoining the potato field, and are transplanted carefully and as quickly as possible. In some seasons there is a little extra expense in watering for a time, but the procedure has been made quite a matter of everyday farm management, and is adopted with regular success where conditions are favourable.

Heavy crops of clover and ryegrass seeds are generally found in the county. They are perhaps usually intended to give a good three-ton crop per acre for one year only, but not infrequently as one-year's ley is left for a second year, and being dressed with farmyard manure it will do satisfactorily for either hay or for grazing. The practice of turning weaned calves on to first-year clover "root" is to be commended. They do not pull up the young plants, as may happen in some districts, nor is there any tendency for young animals to become blown as is known to be the case if they are put on to young clover in other places. The way in which the young animals thrive is a further strong argument in favour of *fresh* land for all stock and especially for immature stock.

The potato occupies an important place in the general cropping of all parts of Cheshire wherever the land is under the plough. The early varieties are made a leading thing in the Delamere Forest area where the land is high lying, dry and sufficiently elevated to escape those spring frosts which not infrequently damage the crop on lower and moister grounds even as late as the end of May. The Timperley and Altrincham areas also may be regarded as typical for very general inclusion of earlies in the course of cropping. The growth of mid-season and late varieties is now the usual business on other lands which cannot quite come up to early working and planting. Many districts which now grow late varieties used to be much more given over to early sorts. It is said of a very competent grower of these in the last generation that he announced at a farmers' meeting in 1882: "Prices are falling; we must cease growing these costly sorts and go in for something that is not so good but that will give a big crop"—thereby showing his accurate judgment of the future of potato growing in his own neighbourhood.

Some examples of cropping rotations may be of interest to show development from what was common during the early nineteenth century and which mainly meant a shift of two years' *oats* followed by a long *summer fallow* in the third year as a preparation for *wheat*, this being followed by one more crop of *oats* laid down with *seeds* for several years' grazing.

Rotation on Medium Sandy Loam.

1. Clover seeds for hay; dunged and boned in previous winter.
2. Oats; corn partly fed to stock; straw chiefly chopped.
3. Early potatoes; dunged previous autumn;
   Catch crop of cabbage for cow feeding.
4. Oats. Straw chiefly chopped for stock.
5. Mangolds and swedes; stubble dunged previous autumn.
6. Second earlies and late potatoes.
7. Wheat; stubble limed in autumn.
8. Oats; laid down with seeds for next year.

Rotation on Strong Clay Loam with no Light Land.

1. Seeds; limed previous winter; cut for hay. Autumn grazed by young stock.
2. Seeds; cut for hay, grazed by cows in autumn; boned early spring.
3. Seeds; grazed.
4. Potatoes; mid-season and lates; dunged on seed ley previous winter.
5. Mangolds; cabbage, swedes or other green crop, carted off.
6. Wheat.
7. Oats; seeded down in spring for 3 years' ley.

Rotation on Light, Sandy Loam, close to large Central Market; no Livestock kept except Working Horses.

1. Seeds; top-dressed in spring; hay sold trussed.
2. Early potatoes; land dressed with town manure in early spring.
   Cabbage and table turnips as catch crop.
3. Oats; straw and grain sold.
4. Seeds; hay sold trussed.
5. Potatoes; town dung applied to seed ley previous autumn.

6. Wheat; straw trussed and sold. Stubble dunged.
7. Early potatoes.
   Catch crop of rye and tares for ploughing in.
8. Oats; straw and grain sold; seeded down.

All the above are examples of cropping which has been successfully put into practice; the old summer fallow has been long ago abandoned and the land is kept clean by means of the potato crop and root crops, each giving their share of opportunity for doing this important work. It will be noticed that barley does not show up in the Cheshire rotations. The crop is never attempted except as a sort of stop-gap when other cereals have failed or when it is considered too late in the season for them to be put in. Growing it on a large scale, as is done a few miles farther south in Shropshire, is quite unknown. This is quite a remarkable agricultural feature and the great difference cannot be fully explained through soil or climate for both counties have much in common in these respects. Doubtless the oat is a better proposition from a dairying point of view because good straw is particularly useful as part of the feed for dairy cows, and this accounts for it being extensively grown, but it does not explain away the fact that Cheshire land fails to produce good barley, whilst similar land in the adjacent county habitually grows a good malting sample.

Rye finds a place occasionally on the land in the southern and eastern sides. It is grown solely on account of its straw which is carefully "lashed"—not put through a threshing machine—and trussed without breaking or bruising so as to satisfy the ever-ready market presented by the Potteries, which needs good, elastic straw to pack valuable materials for shipment or other transit.

LIVESTOCK.

The large head of animals maintained for dairy purposes, the smallness of the cattle-rearing side of the industry and the almost total absence of fattening cattle are the salient features of the business in horned stock. At the present moment the cattle population is in a state of fluidity, not having settled to normal after the decimation of last year; but a decade ago the average figure showed that on ten well-farmed mixed holdings a cow per 1·98 statute acre was carried and this figure was further increased when young stock were added, 1·76 statute acre being the area of land allocated per head to total horned livestock.[1] That such a figure is attainable is largely due to the ease with which the land naturally takes to grass, and the consequent employment of semi-permanent pastures, frequently giving, by their freshness and change, as already mentioned, scope for heavy stocking with the least danger of injury to health which frequently follows keeping animals closely on the same ground without change.

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[1] *Journal of R.A.S.E.*, Vol. 76, p. 105.

For many years now the prevailing breed has been the cross-bred Shorthorn, and usually a selection of heifer calves are reared from the heaviest milking members of the herd. Though most Cheshire farmers are excellent managers of the business of milk-production, very many of them have a good deal to learn, or at all events to put into practice, in skilful rearing of their stock until the young animal can take its place properly in the milking stalls. No doubt the milk-pail must occupy a central point in the picture if the tenant is to live and pay his rent, but this does not seem a valid reason why so many refuse to visualise anything else, or to give other items some of their attention. Calves are, on many farms, never given a proper chance to become really good cows, as they should be when saved from the best milkers. Without more attention to detail in rearing there is not much chance of Cheshire gradually improving her stocks and bringing them up to what they might be as really high-class animals. Many inferior bulls are used in everyday herds. Some farmers purchase good bulls but, strangely enough, a big-framed, handsome animal is frequently bought for his appearance alone and no enquiry made into his antecedents from a point of view of milk pedigree, which is, or ought to be, all-important for the system of farming pursued. The purchase of bulls suited to one purpose and of cows suited to another purpose has never resulted in anything but disappointment.

Friesians and Friesian-Shorthorn crosses have been favoured of late years by some, and farmers on the south-western side of the county frequently purchase cattle from high-lying, sound ground on the Welsh border, finding that district breeds an animal—frequently blue roan in colour, showing the Welsh cross—well suited to their particular needs as cheese makers.

The hill country of Cheshire in the Bosley, Wincle, and Macclesfield Forest districts forms a useful nursery for stock which come down on to the richer lands and improve both in milk and general condition there. The land in many parts is too inaccessible for a regular trade in milk, but many of the farms on the edge of this tract have managed, by the aid of lime or suchlike means, to improve their herbage and carry on a milk business, delivering into Macclesfield, Bollington, Disley, and other towns along the margin of the hills.

Unfortunately the improvement of cattle by bull schemes here, where it is much wanted, has made no greater progress than in the lower-lying parts of the county. In Cheshire it has been an uphill business all the time, and there has been difficulty in forming bull societies whilst the adjoining county of Lancashire were taking on the schemes heartily.

Sheep are seldom kept as a permanent institution in Cheshire, though the flying flock is common. Ewes of a breed known to be good milkers, that have had their full crop of lambs are purchased and put to a Shropshire or other Down ram about October 1, so as to produce fairly early lambs which can be got off fat with their dams before the hot weather of July comes in. This month usually ushers in the green-bottle fly, and its attacks are so strong that sheep keeping for the rest of the summer and autumn is a constant worry and source of loss in spite of the greatest vigilance and care. The practice of early clearing of sheep from the land is the usual and only economic procedure. Kerry Hill, Clun, Cheviot and Border Leicester cross, Border Leicester and Blackfaced cross are all used with success in this method of sheep husbandry, whilst on the well-farmed holding of Kinderton Hall, near Middlewich, the Lonk ewe used to be favoured. On some farms it is considered the best practice to give the land a rest from sheep altogether by missing a year—or perhaps two—occasionally whenever it is thought that the animals are not thriving as well as they might. That this is necessary will be understood from the fact that folding on arable crops is very seldom attempted, and has never had a place in the regular system of agriculture; the sheep are worked over the grass land that has been already pretty heavily stocked by cattle. As an instance of this it may be mentioned that the writer is informed by an old pupil, farming a strong land farm in Mid-Cheshire, that he is carrying on 250 acres a stock of cattle equal to 1·80 statute acre per head plus sheep stock for 9 months of the year equal to 1·54 statute acre per head of his grass.

Cheshire possesses a breed of its own in the Gritstone sheep; a sprightly, hardy sheep of the same general type as those which inhabit the poorer lands of the Pennine Chain. The head-quarters of the breed lies in a small region of exposed, high-lying and picturesque country where the counties of Stafford-shire, Derbyshire, and Cheshire join one another. The sheep is rather attractive in appearance with the clearly speckled black and white face and legs; their faculty for ranging and getting a fair living on specially scanty herbage is distinctly good and the fleece is fine in staple for this class of wool. Like all the type to which they are akin, the ewes are good milkers, and the sheep feeds to a useful moderate weight of about 15 to 17 lbs. per quarter for a well-fed shearling. Great efforts have been of late years made by their breeders to improve and secure uniformity, and it is likely that the breed has room for promising expansion in future on similar poor lands.

Though Cheshire can hardly be classed as one of the horse-breeding counties, a fair number of animals are raised for the home supply, and the generality of mixed farms have a mare put to the horse each season for replenishing of the home stable or for sale at maturity. The class of horse kept is good and probably there are few districts where the average teams seen working in the fields are of better quality or treated with more commendable care as far as stable management is concerned. Several fine studs of shires—notably those at Eaton and Lymm—are situated in the county and there are many flourishing and well-conducted horse societies which are able yet to afford a premium good enough to attract the owner of a high-class stallion fit to beget colts of style, weight and character such as will still command—in spite of the advance in mechanical traction—a good price for town work at rising six years old, after they have more than earned their keep by working on the land.

Pigs are kept in fairly large numbers on all farms, and on those where cheese is made it would be difficult to farm without them to make use of the abundant whey which would otherwise run to waste. Large Whites are the favourite breed and the one from which the best demand appears to come from local butchers and from adjacent large markets such as those of Staffordshire. On a cheese farm of 200 acres, 80 to 120 pigs will be fed off in the course of a season, and the largest proportion of these in summer when there is a big flow of milk.

LABOUR.

So far as labour is concerned, there is the usual complaint made that good, skilled men are not easily obtainable, nor are the places of older men filled up by young men coming on who are similarly skilled. That this trouble is widespread over the country there is no doubt, and there is, and probably always will be, a shortage of capable, quiet, industrious and observant men to take charge of livestock especially. In Cheshire, however, most of the family who are at home work on the land and amongst the stock, whilst the master himself is usually fully competent not only to instruct others in manual operations but to do a considerable share of the work in a highly skilled manner himself. This tradition for work has been of very marked benefit in holding the agricultural business together and has enabled the county to be more or less independent of the vagaries of hired help, and never to be absolutely cornered for lack of hands to carry on with.

There is not very much field work done by woman labour, even of such work as is appropriate to them, such as hoeing, harvesting and cattle tending; nor is there any preponderance of women milkers in ordinary daily employment amongst the cows. In one department, however, female labour is absolutely predominant—in the dairy on the cheese farms. Here the great responsibility is with the wife and daughters who have the largest share of the labour and the most exacting hours of anyone about the place. The industry with which the county is specially associated in the minds of the general public, could not be carried on but for their knowledge and help. The County Council Dairy Institute at Worleston, near Nantwich, has for many years turned out a supply of young women workers well trained in this branch of work.

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THE WRITINGS OF ARTHUR YOUNG.

THE writings of Arthur Young coincide with a period of change in the agricultural life of this country. The population, which has been estimated as amounting to about 2 millions at the time of the Norman conquest, had increased by the middle of the eighteenth century to 6½ millions. From this time its growth became much more rapid, and by 1801, when the first census was taken, it amounted to roughly 10 millions. This rapid growth, itself the result of changes brought about by the industrial revolution, created a market and indeed a necessity for greater production from the land.

Agricultural writers of varying ability had long advocated improved methods, such as the growth of turnips and clovers, but the unpractical character of a great number of their suggestions, combined with the absence of markets and difficulties of communication, had resulted in little attention being paid by the ordinary farmer to their works. Agriculture was still in the stage where the cultivator produced mainly for his own requirements and had little thought of growing a surplus for sale. The foodstuffs of the people consisted largely of bread made from rye, or mixed grain, and pork; as late as 1814 Arthur Young in giving evidence before a Select Committee estimated that 2½ millions still depended upon bread made from cereals other than wheat. The industrial revolution bringing in its train a very rapid increase of the urban population created a market for agricultural produce, and the Napoleonic wars, which cut off foreign supplies, made necessary a surplus of production over the requirements of the farmer. Nor was this all; a growing partiality for wheaten bread together with a demand for beef and mutton made considerable changes in agricultural methods essential. This development was peculiar to Great Britain; from this time onwards for a century our agriculture was far in advance of that of other countries and became the pattern for the world.

It is in the diffusion and popularisation of new and improved practices that the merit of Arthur Young's work lies. His insistence on the necessity of testing new ideas by actual practice before recommending them to his readers, and his numerous Tours which gave him a knowledge of successful operations in different parts of the country, secured for his writings a reputation and a popularity which were the foundation of his influence. When he began to write in 1764 the great part of the countryside was still unenclosed and cultivated upon methods which had changed but little from those of the Middle Ages. Scattered strips, traditional rotations and rights of grazing the stubbles in common blocked the path to improvement in arable farming; while common pasture and the scarcity of winter feed militated against the spread of the improved methods of animal husbandry. Enclosure, the keynote of agricultural history in the latter half of the eighteenth century, had been advocated by writers since the time of Tusser in the reign of Elizabeth, and in the sixteenth century especially a considerable amount of enclosure, both in the Eastern counties and in and around Shropshire had taken place, largely with the object of turning arable to grass. This enclosure movement had been continued on a much reduced scale ever since, but with the accession of George III the change became more rapid, enclosure taking place largely with the object of enabling the farmer to benefit from the improved methods, both in arable and animal husbandry. Arthur Young's influence in stimulating this change was considerable, he was all in favour of large farmers on enclosed land, he enjoyed the advantage of a wide connection among the landowning classes, and since it was from the latter that the initiative for enclosure mainly came, his spirited arguments produced their full effect.

Arthur Young was born on September 7, 1741, and died on April 12, 1820. His literary career extended over a period of half a century, from 1764 to 1815, though for the last five years blindness interfered with his activity. Fortunately for British husbandry he turned his attention at an early age to the subject of agriculture, and soon began to contribute to one of the few periodical publications devoted mainly to such topics—the *Museum Rusticum et Commerciale* which was published during the years 1763–1766.

One of his first efforts was a letter to this periodical under the title "Reasons why Farming so often proves Unprofitable"; in it he drew attention to some conditions which are unfortunately not absent to-day.

"The bad success of great numbers is owing to their not having a sufficient sum of money to begin with, which inevitably involves them in difficulties, and reduces their profit on every article of their produce. Their farms are under-stocked; they sell at a constant disadvantage; their fields are not half cultivated; and in a short series of years, unless some lucky hit sets them up, they grow poor, in spite of all possible industry, judgement, and application."

"The want of judgement, in proportioning the quantity of each particular kind of stock to the quantity and nature of the land of a farm, is also attended with great loss. For instance: if a farm requires four horses, or two ploughs, and the farmer keeps only three horses, or a plough and a harrow, his fields cannot be sufficiently cultivated, even according to the ideas of culture common among farmers; and, of course, in a few years his lands must be in a very bad order, to his great annual loss. The same ill consequences attend either over- or under-stocking a farm with all other cattle."

"The proportion of the pasture and arable lands of a farm, is of great consequence towards the occupier's making a profit of his business. I have already shown how much more advantageous the former are than the latter; nevertheless many farms have scarcely any grass, and others none at all: the contrary fault, of having too much, never came yet within my observation."

These sentiments may appear truisms at the present day, but that they struck a new note in the eighteenth century is shown by the letter being reprinted at the beginning of a volume of selected essays published in Scotland in 1767.

In another letter to the same periodical he writes "Of the Usefulness of acquiring a Knowledge of Foreign Practices in Husbandry," and his directions are perhaps worth noting:—

"Let us suppose a proper person to undertake the tour of Europe, or a part of it, merely to render himself perfectly acquainted with every particular, the least worthy of observation, in the practice of the agriculture, of every country through which he passes. Such a person, however he might casually amuse himself in a city, ought to deem the country the scene of his travels, and everywhere take up his abode in a village. He should, in general, avoid the roads pursued by travellers, and take his rout through provinces where foreigners seldom appear. He should be very slow in his motions, residing some time in any place where he finds matter for observation. If anything striking occurs in the practice before him, he should attend the culture of the lands, the sowing and harvest; and manage his rout in such a manner, that this plan may not occasion an unnecessary residence, nor a needless distant removal from one place to another. The soil should always be an object of his attention, in every variety, and the grain, or grass, which seems best to suit it. He should make drawings of every machine and implement of husbandry that differs from those of his own country, and observe particularly the respective methods of working them. He should procure seed of corn and grass (and some of the breed of remarkable cattle), sending them to England, with directions on what land to be sown, and on what grass to be fed. In some countries this may be prohibited, but it is allowed in many: in a word, the whole economy of agriculture in every province should be observed and minuted; the manner in which lands are rented, the covenants, the method of cultivating them, where the landlord farms, and all upon his estate are either his servants or his slaves. It would not be amiss to remark also the methods of making and repairing the roads in most countries; all the effects of the laws and police respecting the poor; not to study them in books, but to view their effects among the very people concerned. Some hints might possibly be caught, worthy the attention of the British legislature itself."

These directions were followed by a suggested itinerary for a tour on the Continent, and it is pleasing to think that twenty years later he was able to put into practice the very scheme that he had drawn up at a time when there was no prospect of its being more than a dream.

The Farmer's Letters to the People of England, his first book, made its appearance in 1767; he was then twenty-six years of age and had farmed for little more than five, yet his effort was a success, a second edition and a reprint in Ireland being called for in the following year.

The Farmer's Letters contain a discussion of the economics of large and small farms in which the subject matter is dealt with under five heads: the quantity of produce and the value of it to the farmer and the public—the number of people employed—the different value to the State of the hands employed in each—the difference of advantage to the landlord—the number of horses kept. He comes to the conclusion that the maximum production is obtained from those farms requiring six to a dozen horses, that this type of farm also employs the largest number of hands in proportion to the acreage, and that the value to the State of the hands employed in this class is greatest. "The employment of labourers who are generally married men is more advantageous than house servants who are single: nor should we forget that this employment is regular; they have a constant attendance on their work; whereas the lower classes employ them by fits and starts only at busy times."

From the landlord's point of view he concludes in the case of the small farms: "It may therefore be established as a maxim that the gain by rent is often lost in repairs owing to a ridiculous quantity of building, but when landlords act rationally in regard to the buildings I am fully persuaded that their profit from them is greater than from large ones."

"The second class, those which are cultivated with four horses, seldom let at so high a rent as the first. But tenants being very readily to be had for them I believe they generally pay more per acre than for larger farms. What I observed in the last article concerning the buildings is in a good measure applicable to these: the profit of them compared with larger or smaller farms depends in a good measure on the repairs—if there be no more buildings than necessary I apprehend this class to yield more profit to a landlord than any larger farm. The third and fourth classes consisting of large farms and very large ones are by no means let with that quick facility as the former ones: there are not near so many men whose pockets they suit and this necessarily occasions the land thus divided not to let so well as when in smaller portions. But then there is another circumstance to be considered which regards improvement; if a landlord's estate requires it these are the men alone who can effect that—the former classes are quite incapable of it: and this is more particularly the case with extensive farms on a poor soil which requires marling, claying, chalking, or any other expensive and lasting improvement. In these cases the large farms are undoubtedly the most profitable."

Again, he says, the third class shows its superiority in the matter of horse labour: "These men are rich enough to keep their horses at work the whole year which makes an amazing difference." From investigations made on twenty-four farms equally distributed among the first three classes he found that whereas in the third class there was one horse to every 17 acres, in the first there was one horse to every 9 acres.

A third edition of this work appeared in 1771, and the publicity given to Arthur Young's views on the economics of large and small farms did not fail to influence the landowners when redistributing their estates after enclosure.

The next work to appear was *The Six Weeks' Tour through the Southern Counties of England and Wales* in 1768. This too met with "a very kind reception" and passed through three editions in a short time. In 1770 he produced no fewer than five works: the *Northern Tour* in 4 volumes, the *Experimental Agriculture* in 2 thick quarto volumes, the *Farmer's Guide* in 2 volumes, *Rural Economy*, and a Tract upon the exportation of corn.

The following extract from the Preface to the *Northern Tour* will give some idea of the difficulties experienced in collecting reliable information.

"For many hundred miles I had nothing but provincial weights and measures, totally unknown in the south. These were all reduced to the common standard; the intelligence I received in the most common points was conceived in such uncommon terms, and in such barbarous measures, that had I not gained numerous explanations, my work would have been a volume of contradictions. A practical knowledge of agriculture is as requisite to such as plenty of patience. After abundance of explanations, I frequently had such intelligence as would have passed current with those who were unexperienced in husbandry, but which forced me to most uncommon attention to discover wherein was the mistake. My business was likewise so unusual, that some art was requisite to gain intelligence from many farmers, etc., who were startled at the first attack. I found that even a profusion of expense was often necessary to gain the ends I had in view: I was forced to make more than one honest farmer half drunk, before I could gain sober unprejudiced intelligence. Nor were such my only difficulties; I met with some farmers who gave me accounts too improbable to credit; whether from ignorance or an intention to deceive, I know not; but I always repeated my enquiries upon those occasions, until I gained the truth. When the candid reader considers these and many other circumstances, I flatter myself, he will excuse small errors, and improprieties of stile."

It is not often that an author is called upon for two editions of a four-volume work in one year—this, however, was the case with the *Northern Tour*—although most of the copies of the second edition are dated 1771—it will be seen from the list that it was first put upon the market at the end of 1770. At the age of thirty Arthur Young had established himself as one of the foremost agricultural writers of the day.

The Experimental Agriculture, with its masses of figures and calculations, came out soon after the *Northern Tour*; its author in after years regretted its publication and spent much time and money in buying up and destroying such copies as came upon the market. Curiously enough an octavo issue in four volumes was printed in Dublin in 1771. The interest taken in agricultural matters in Ireland in the eighteenth century must have been considerable—most of the works of standard English authors being reprinted there.

1771 was again a busy year; *The Eastern Tour* in 4 volumes, one of the best of his works, the *Farmer's Calendar*, and a pamphlet advocating a Quinquennial census appeared. The success of his writings was immediate, and his ideas became the basis of a new agricultural policy. In the dedication of a pamphlet by T. Comber, entitled *Real Improvements in Agriculture* (on the principles of A. Young), 1772, occurs the following passage:—

"You have conversed with me on the important subject of real improvements in agriculture and frequently enquired my sentiments of Mr. Young's works in general. I have often told you that I think them likely to prove, when properly applied, of great service to the public."

Young did not escape, however, a great deal of criticism. J. Wimpey, in his *Rural Improvements*, published anonymously in 1775, attacks his essay on the management of hogs, published in 1769, and concludes with the following reference to him: "All he has said is impertinent and useless."

Young himself has left on record, in his Autobiography, some account of the profits of his pen: "1775. This winter I spent in London. From 1766 to 1775 being ten years, I received £3,000, or £300 a year." These amounts were the receipts from his writings.

During the years 1776–79 he was in Ireland and on his return published one of his most successful books, *A Tour in Ireland.* Three editions of this work appeared in 1780, and it was later translated both into French and German. In 1784 he began the publication of that stupendous work *The Annals of Agriculture*, which continued to appear with great regularity until 1809. Altogether, it amounted to forty-six volumes containing contributions from agriculturists in all parts of the world upon matters connected with rural economy. Much of the subject matter was from the pen of the Editor himself. George III himself contributed some letters to it under the name of Ralph Robinson, and Queen Charlotte once told Arthur Young that she never travelled without a volume of it. In America George Washington anxiously looked forward to the arrival of new numbers from his London bookseller.

In spite of the stir it created its editor found it impossible to maintain the circulation at 750 copies, and in a publishing account of the first three volumes he gives vent to his feelings and at the end gives us a glimpse of his character: "I must observe, that while so many periodical works sell their four or five thousand copies, the difficulty of raising the sale of this to 500, supported by a most spirited and able correspondence, that equals my warmest wishes, is a spectacle that must be marvellous to those who place the national agriculture in the light of an object that demands an almost general attention. But when it is in every one's recollection what efforts have been made by the great and wealthy, from one end of the kingdom to the other, to disseminate productions dictated by faction to answer the vile purposes of party politics, it will yield a conviction that the subjects treated in this work are destitute of those attractive circumstances which catch the attention, and secure the support, of the highest classes of the State. I shall here close these accounts: my publisher complains of them as quite novel in the trade. I shall, however, assure my readers, that I am determined to prosecute the work on the disinterested principles on which I undertook it, sparing no effort which the sale allows, to make it as useful as possible."

In 1786 Arthur Young paid a visit for the second time to Robert Bakewell at Dishley and published an account of his journey in the sixth volume of the *Annals*; he sums up the aims of the first great British stockbreeder in the following sentences :—

"To explain the principles which have guided him in breeding a beast or sheep (for the same rules are applicable to both) for the butcher will at the same time explain his own stock, which are in the highest perfection, when examined with an eye to those principles.

"The leading idea, then, which has governed all his exertions is to procure that breed which in a given food will give the most profitable meat—that in which the proportion of the useful meat to the quantity of offal is the greatest: also in which the proportion of the best to the inferior joints is likewise the greatest.

"The propriety of the rule is obvious, and at one stroke cuts off many notions that will not stand the test of that critical examination, which may on this principle be instituted. Thus the short leg, when the result of a great heaviness in the belly and the shoulders, indicates no more than the weight of the beast being in the worst joints. Some are at present fond of a great dewlap, but, as it is mere offal, yet undoubtedly demands that nourishment which might go to a better place, it is to be rejected as an absurdity and classed with the folly of a Norfolk sheep master who admires a ram's horn, 3 ft. long and 9 in. in circumference. For the same reason, a thick hide, a great head, or in a word any part of the animal being heavier than ordinary, except those joints which are the most valuable, are to be considered as breeding offal not meat; and on the contrary, those best joints cannot be too heavy under which idea Mr. Bakewell has bred some beasts to be so exceeding fat on the rump as to appear monstrous to the eye."

The significance of this striking statement of the aims of the stockbreeder will be appreciated when it is remembered that at this time cattle and sheep were taking on a new rôle. Meat production as an objective was in its infancy, and cattle were still looked upon primarily as workers—to be sent to the shambles only when they were becoming too old to plough—the main income from sheep was derived from the sale of their wool, though this was becoming less profitable owing to competition from Continental Merinos. The growing taste of the rapidly increasing urban population for meat was, however, beginning to make its influence felt, and Arthur Young performed a real service by directing attention to the true principles of the meat-producers' art and by ridiculing ideas that were very generally held in his day.

From 1787–89 he was occupied with the *French Travels* and his account of his experiences has become a classic not only here but also in France. It is to be regretted that the chapters following the diary of his travels, which deal more particularly with agricultural subjects, have never been reprinted in English editions, though they are to be found in the French reprints. These chapters contain the details of French agricultural practice collected during his journeys, and from the agriculturist's and economist's point of view they are of great interest.

His observations had led him to sympathise with the aspirations of the early Revolutionary Period, but the subsequent excesses changed his views, and *The Example of France—a Warning to Britain*, which quickly ran through four editions and an Abstract, was one of the most important of the Anti-revolutionary publications. It brought forth bitter reproaches from the extreme element in this country, which were not lessened by his acceptance of the Secretaryship to the newly formed Board of Agriculture in 1793.

It is to the activities of this body that we owe the fine series of county surveys of the agriculture of Great Britain, which constitute a mine of information still largely unexplored. His appointment marked the end of his active literary life, and though less than half the *Annals* had then appeared, and he was still to draw up six of the County Surveys and to publish a number of pamphlets, no considerable work appeared thereafter from his pen. His mission was largely accomplished; the agricultural classes had been presented with a mass of information, and the movement towards improvement was well started.

Much of his writings met with criticism, in some cases not entirely undeserved. The *Farmer's Magazine* for 1801 contains a review of his Lincolnshire survey from which the following extracts are taken:—

"Mr. Arthur Young, who amused and instructed us in our younger days by his rural writings, is the author of this work; indeed, whether the title-page had afforded us this information or not, the work itself contains intrinsic evidence of the source from whence it proceeded. We observe the same desultory way of writing, the like chaos of materials, and a similar quantity of political arithmetic, as characterise this gentleman's other performances. Considering the number of years he has been employed in such investigations, the public might have sanguinely expected a perfect view of the Lincolnshire husbandry, especially as the author had a full command of official information.

"The first stroke of Mr. Young's pen is used to arrange the county into arbitrary divisions, such as Wold, Heath and Miscellaneous Tracts. For this purpose, a map of the soil is sketched out—we presume from imagination, as it is impossible that such an arrangement could have been executed with any measure of exactness, in the short time devoted to the business. From this map, the number of acres of each kind of soil is calculated."

It had been intended originally that T. Stone should draw up the Lincolnshire Report, but his draft had, apparently, not met with the approval of the Board. He published a *Review of Arthur Young's Survey* in which he violently attacked the author. That the Reviewer in *Farmer's Magazine*, quoted above, was not actuated by mere prejudice may be surmised from his Review of Mr. Stone's Review in which he says: "A severe drubbing is here given to our old friend, Mr. Secretary Young, though the rod is applied with more zeal than judgement. We believe Mr. Stone is an excellent land-surveyor, and that he possesses a greater store of practical knowledge than his antagonist; but his talents for reviewing seem to be of an inferior cast, and the specimen afforded in this publication will not add to his celebrity."

In 1808 Young drew up for the Board of Agriculture a *General Report on Enclosures.* His summing up, in this work, of the whole question of Enclosures *versus* Open Field is an excellent example of his style, and leaves the reader in no doubt as to the influence his statements must have exercised upon the minds of his contemporaries:—

"Common field arable usually lies, respecting the lots of individuals, in so scattered and divided a state, that every operation of tillage, harvest, etc. is carried on at an expense considerably greater than in enclosures; the plough, the harrow, and the cart, travel a useless distance; less land is ploughed, and less manure and corn carted; hence arises the necessity noticed in the minutes, of keeping more horses upon a given quantity of land, from which results great national loss. In moving from one piece to another, the horses and implements unavoidably trample much more land than in enclosed fields, which upon wet soils is a mischievous circumstance. But all these are trifling points, when compared with the fatal shackles under which every occupier, however anxious for improvement, is bound to the courses of crops entailed by custom on a common field. A regularly returning fallow, with one, two, or three crops of corn; the beans, if any, finishing instead of beginning the rotation, exemplifies the whole system upon soils formed by nature for turnips, clover, and various other grasses. Dry chalk thinly covered with miserable oats, where luxurious crops of sainfoin might be at command: turnip sands under barren fallows; fertile clays, that under grass would feed the largest oxen, poisoned with water, and the crops cloaked with weeds; the landlord losing rent, the tenant profit, the poor employment, and national prosperity at a stop. What system of barbarism can be greater, than that of obliging a farmer of a parish possessing soils perhaps totally different, all to cultivate in the same rotation! What a gross absurdity, to bind down in the fetters of custom ten intelligent men willing to adopt the improvements adapted to enclosures, because one stupid fellow is obstinate for the practice of his grandfather! To give ignorance the power to limit knowledge, to render stupidity the measure of talents, to chain industry to the non-exertions of indolence, and fix an insuperable bar, a perpetual exclusion, to all that energy of improvement which has carried husbandry to perfection by means of enclosure! Yet is all this done by the common-field system.

"To flocks that are kept in the open fields, feeding on stubbles, baulks, swampy confines and fallows, in situations void of all draining, the consequence is notorious; the profit is reduced to the mere fold, and that often insufficient to pay the almost periodic losses by rot and otherwise. The reports are almost uniform on this subject.

"As to common pastures, the minutes speak but one language, and that so decisive, as to convince all but the most prejudiced and interested readers. The best soils, by overstocking, are almost reduced to a par with the worst. The value of the food thus gained is so contemptible, that the best farmers despise it too much even to accept it. An utter degradation and ruin of the breed of all the animals thus supported—distempers for ever making a dreadful havock—the poor without industry—the rates enormous—health depraved—and morals destroyed. Such is the uniform picture; and a more wretched and melancholy one is hardly within the compass of imagination. What a spectacle, viewing it politically, to see the produce of such immense tracts, amounting to millions of acres, minus in the national account!

"To state the benefits that result from enclosing open arable fields and common pastures, is to reverse the medal; to see all their evils remedied, and all their advantages increased. By giving an exclusive property to the soil, the proprietor has his industry unfettered; he is allowed to expend his capital; he is permitted to apply his lands to whatever use will pay him best; he neither burdens his neighbour nor is shackled by him; no barbarous customs prohibit his exertions; his talents, his energy, and his capital, are free to be employed for his own benefit; he thrives and national prosperity follows in his train.

"It is fair to estimate, in general, from the preceding notes, that the enclosing open arable fields advances the rent to double the old proportion, and this must be esteemed a fact of great importance, for it implies double, treble, quadruple, and in some cases a much larger proportion, in the increase of produce, lessening in the expenses of cultivation, and, in consequence of both, a larger mass of commodities carried free to market: advantages that are gained by a most useful employment of hands, now perhaps next to idle, and an equally beneficial employment of capitals in the most important of all investments. The landlord doubles his income; the farmer trebles his profit; the labouring poor are more regularly employed and better paid; and all those classes of the community that reside in towns, and support the manufacture and commerce of the kingdom, receive supplies in their markets adequate to the advance they make in the prosperity and population of the nation.

"If such benefits flow from the enclosure of open arable fields, how much greater are those which result from converting common pasture into private property! Arable lands must be of some value at present: they bear a rent, and sometimes a high rent: but pastures liable to the infinite inconvenience of overstocking, flooding, want of draining, and a deficiency of every sort of improvement, have in innumerable instances proved to be of no use whatever, but on the contrary a real nuisance and mischief; yet capable, by enclosure, of carrying a rent of from 10*s*. to 30*s*. an acre. This is so prodigious a benefit, that it almost mocks the powers of calculation; and when it is considered that the quantity of land thus worse than lost to the community is very great, and found spread through every county and even hundred of the kingdom, the magnitude of the object must be strongly impressed on every mind; and the clearest conviction follow, that this is a business that ought not any longer to be delayed."

The year of the publication of this report saw Young faced with failing eyesight; his Autobiography contains the following note—"In February [1808] I was obliged to take a reader as my sight was failing fast; notwithstanding the state of my eyes I am generally up at 4 a.m."

To a man of his temperament this was a heavy blow; he was compelled to relinquish the Secretaryship of the Board of Agriculture, into the work of which he had thrown himself, although middle-aged, with all the energy of a young man.

The Board, established in 1793 as the result of the efforts of Sir John Sinclair, had been suggested by Young as long ago as 1769 in the fourth Volume of his *Northern Tour*, though, as he wrote later, "the idea then a barren one, became different, when taken up by an enlightened and active member of Parliament."

The attacks made upon this body and its work led him to deliver, in 1809, a reasoned address to its members on the "Advantages that have resulted from the establishment of the Board of Agriculture."

From now on most of his time was spent at Bradfield, where he devoted himself to spiritual exercises and educational work among the villagers, and to the compilation of a colossal general treatise entitled *The Science and Practice of Agriculture.* This work was never printed, but an interesting reference to it is made by R. H. Elliot in his book *Agricultural Changes required by these Times,* the third edition of which was published at Kelso in 1905.

"Last July I accidentally heard of his work, which had been presented to the British Museum by the widow of Arthur Young's grandson, and at once went to look at it, in the hope that I should find something of value with reference to the subject I am now writing on. I was asked by one of the polite officials in the MSS. Department if I should like to see the whole work. I replied in the affirmative, expecting to see two or three volumes at the most. After some delay the door was opened, and there was wheeled noiselessly into the room a kind of perambulator on four indiarubber-lined wheels, on which were ten very large volumes of MSS., written on foolscap of very large size, and none of which, I think, contained less than 500 pages, while several contained more than 1,100. These enormous volumes, though entitled *The Science and Practice of Agriculture,* really seem to relate to every branch of rural economy, down to the management of bees, the transporting of live fish alive, and the castrating of fish, a practice which seemed to be not uncommon a century ago, and a notice of which I have read in the *Scots Magazine,* which runs from 1739. It was, no doubt, on this great work that he thought his reputation would most surely rest, and, considering that its very existence can hardly be said to be known, it is difficult to read Arthur Young's preface to it without a feeling of melancholy. 'This work,' he says, 'which I now presume to offer to the public, has been founded on the basis of fifty years' experience, much of the labour of more than thirty years, and travelling to the extent of more than 20,000 miles. It was not originally undertaken with the design of publication, but to form a collection of all those passages which I met with in the perusal of books in my own private use.' Shortly after Arthur Young's death an attempt was made to bring out what has been well called his life's work, and it was accordingly submitted to publishers in London; but they were all deterred from undertaking the publication, owing to the great size of the book and the consequent risk of publishing it. A few years later Sir John Sinclair, who was anxious that the work should not be lost sight of to the agricultural world, asked to have it sent to Scotland, believing that Edinburgh publishers would perhaps undertake what their London brethren had declined; but no success attended this attempt, and the MSS. were returned to Bradfield, then occupied by Arthur Young's daughter.

"Miss Young died in 1851, having appointed as her executor a Mr. de St. Croix, who then placed the MSS. in the hands of his brother Walpole to copy and condense, so that they might be bound and preserved; hence the ten large volumes to which I have alluded. It might be well to mention that the MSS. have been copied in a clear handwriting, and that to each volume there is a table of contents, so that the work may be easily consulted. The original MSS. are also in the British Museum."

Some idea of the extent of Arthur Young's literary activity may be obtained from the number of his works. The following list contains no less than 140 items, amounting to nearly 250 volumes. It will interest members of the Royal Agricultural Society to know that their Library contains the best individual collection of his works in the world; there are represented in it no fewer than 91 of the 140 items, the British Museum Library coming next with 88. This superiority is due to the generosity of the late Sir Walter Gilbey, who, in 1896, presented a large number of Arthur Young's works to the Society.

The story of Young's life, which was in many ways a sad one, has been sketched by various writers, as well as by himself; the following are the more exhaustive accounts:—

Paris. Brande's *Journal of Science.* Vol. 9.

A. Pell. *Journal of the Royal Agricultural Society,* 1893.

Miss Betham-Edwards. Biographical notice in her editions of *Arthur Young's Travels in France.*

More detailed information of a personal character will be found in the *Autobiography of Arthur Young,* edited by Miss Betham-Edwards.

Limitations of space have prevented the above notes being anything but discursive; a volume would be required to do justice to the subject of Young's literary career. The list of publications which follows is almost certainly incomplete, the writer having acted upon the principle of including no work the existence of which he could not vouch for; several issues, the existence of which he has reason to suspect, but which he has been unable to trace, have therefore been omitted.

G. D. Amery.

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Short List of the Works of Arthur Young.

The items in the list of editions and issues appended have been arranged in the chronological order of the first editions;

the following short list of Arthur Young's works, arranged alphabetically and with the date of the first edition only, is included to facilitate reference to the main list :—

Address proposing a Loyal Association. 1792.
Advantages of the Board of Agriculture. 1809.
Annals of Agriculture. 1784.
Autobiography. 1898.
Baxteriana. 1815.
Constitution Safe without Reform. 1795.
Course of Experimental Agriculture. 1770.
Cultivateur Anglois. 1800.
Culture of Carrots. 1819.
Enquiry into the Legality of increasing the Royal Navy. 1783.
Enquiry into the Progressive Value of Money. 1812.
Enquiry into the Rise of Prices. 1815.
Enquiry into the State of the Public Mind. 1798.
Essay on Manures. 1805.
Essay on the Management of Hogs. 1769.
Essay on the Spirit of Legislation. 1772.
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Farmer's Tour through the East of England. 1771.
General Report on Enclosures. 1808.
General View of the Agriculture of Essex. 1807.
,, ,, ,, Hertfordshire. 1804.
,, ,, ,, Lincoln. 1799.
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Georgical Essays. (Contributions.) 1803.
Husbandry of Three Celebrated Farmers. 1811.
Idea of the Present State of France. 1795.
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Letter on Tithes. 1792.
Letter to Lord Clive. 1767.
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Letters from General Washington. 1801.
Museum Rusticum et Commerciale. (Contributions.) 1764.
National Danger and Means of Safety. 1797.
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Oweniana. 1817.
Political Arithmetic. 1774.
Political Essays. 1772.
Proposals for Numbering the People. 1771.
Question of Scarcity plainly stated. 1800.
Question of Wool truly stated. 1788.
Reflections on the Present State of Affairs. 1759.
Rural Œconomy. 1770.
Six Months' Tour through the North. 1770.
Six Weeks' Tour through the Southern Counties. 1768.
Speech on the Wool Bill. 1788.
Theatre of the Present War in N. America. 1758.
Tour in Ireland. 1780.

Travels in France. 1792.
Universal Museum. 1762.
View of the Agriculture of Oxfordshire. 1809.

LIST OF THE EDITIONS AND ISSUES OF THE WORKS OF ARTHUR YOUNG.[1]

(*Note.*—The abbreviations refer to the Libraries in which copies may be found. Libraries other than the British Museum, Bodleian, Cambridge University, and Royal Agricultural Society have been included only in cases where the books are not found in either of the four named above or only in one of them.)

B.M.	British Museum.
Bodl.	Bodleian.
U.L.C.	University Library, Cambridge.
R.A.S.E.	Royal Agricultural Society.
N.L.W.	National Library of Wales.
Bibl. Nat.	Bibliothèque Nationale, Paris.)

The Theatre of the Present War in North America: With Candid Reflections on the great Importance of the War in that Part of the World. By A. Yxxxx, Esq. London: Printed for J. Coote, 1758. 8vo. (B.M.)

Reflections on the Present State of Affairs at Home and Abroad. By A. Yxxxx, Esq. London: Printed for J. Coote, 1759. 8vo. (B.M.)

The Universal Museum, or Gentlemen's and Ladies' Polite Magazine of History Politicks and Literature for 1762. Vol. 1. London: 1762. 8vo. (Bodl., B.M.)

Museum Rusticum et Commerciale: or, Select Papers on Agriculture, Commerce, Arts and Manufactures. 6 Vols. London: 1764–6. 8vo. (R.A.S.E., B.M.)

Vol. 3. No. 45: Common Farmers vindicated from the Charges of being universally ignorant and obstinate. No. 46: On the Mowing Wheat, and cultivation of Lucern. No. 47: Of Manuring Land at a Large Expense. No. 63: Of the Improvement of Wet Pastures. No. 74: The Profit attending Arable and Pasture Land compared, as found by Experience, near Bury, in Suffolk.

Vol. 4. No. 8: Of the Usefulness of Acquiring a Knowledge of Foreign Practices in Husbandry. No. 9: An Enquiry respecting the Prices of the Implements used in the New Husbandry. No. 10: Some errata in Number 74, Vol. 3, corrected. No. 38: The Use of Broad-Wheel Waggons recommended to Farmers. No. 62: Reasons why Farming so often proves unprofitable. No. 63: An Answer to Ruricola Glocestris in which is contained an Estimate of the Expenses and Profits of a Dairy of Four Cows.

(These Letters, with the exception of No. 46 of Vol. 3 and No. 63 of Vol. 4, were reprinted in the Farmer's Letters under the title of Sylvæ; No. 74 of Vol. 3 and Nos. 62 and 63 of Vol. 4 were reprinted in "Select Essays on Husbandry," Edinburgh, 1767. 8vo. (R.A.S.E.)

A Letter to Lord Clive, on the Great Benefits which may result to the Public from patriotically expending a small part of a large private fortune: Particularly in Promoting the Interests of Agriculture, by Forming an Experimental Farm. Containing a Practical Course of Management, with Estimates of the Expenses and Profit. Illustrated with a Plan of the Farm. London: Printed for W. Nicoll, 1767. 8vo. (R.A.S.E.)

The Farmer's Letters to the People of England: containing the Sentiments of a Practical Husbandman, on Various Subjects of the Utmost Importance. To which is added, Sylvæ: or Occasional Tracts on Husbandry and Rural Œconomics. London: Printed for W. Nicoll, 1767. 8vo. (B.M., R.A.S.E., U.L.C.)

——— The Second Edition, corrected and enlarged. London: Printed for W. Nicoll, 1768. 8vo. (R.A.S.E.)

——— The Third Edition, corrected and enlarged. Dublin: Printed for J. Milliken, 1768. 16mo. (R.A.S.E.)

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[1] The writer is by no means certain that this list of the editions of A. Young's works includes all the Irish or Foreign issues—he has included only those of which he has definite knowledge. He will be glad to have information as to others that may turn up.

The Farmer's Letters to the People of England. The Third Edition, corrected and enlarged. In 2 Vols. (Vol. 2 has title, The Farmer's Letters to the landlords of Great-Britain; and is illustrated with 14 plates.) London: Printed for W. Strahan, etc., 1771. 8vo. (B.M., R.A.S.E., Bodl., U.L.C.)

A Six Weeks' Tour, through the Southern Counties of England and Wales, with Descriptions and Models of such New Invented Implements of Husbandry as Deserve to be Generally Known: In Several Letters to a Friend. By the Author of the Farmer's Letters. (Illustr. in text.) London: Printed for W. Nicoll, 1768. 8vo. (B.M., R.A.S.E.)

——— Second Edition, Corrected and Enlarged. (Illustr. with plate and figure in text.) London: Printed for W. Strahan, etc., 1769. 8vo. (B.M., R.A.S.E., Bodl., U.L.C.)

——— Third Edition, Corrected and enlarged. (Illustr. with 3 plates.) London: Printed for W. Strahan, etc., 1772. 8vo. (B.M., R.A.S.E., U.L.C.)

Letters concerning the Present State of the French Nation. With a Complete Comparison between France and Great Britain. London: Printed for W. Nicoll, 1769. 8vo. (B.M., R.A.S.E.)

An Essay on the Management of Hogs; Including Experiments on Rearing and Fattening them. London: Printed for W. Nicoll, 1769. 8vo. (B.M.)

——— Second Edition (includes Culture of Coleseed). London: Printed for W. Nicoll, 1770. 12mo. (B.M.)

A Six Months' Tour through the North of England. Containing an Account of the Present State of Agriculture, Manufactures and Population in Several Counties of the Kingdom. Illustrated with 27 plates. 4 Vols. London: Printed for W. Strahan, etc., 1770. 8vo. (R.A.S.E., Bodl., U.L.C.)

——— Second Edition, Corrected and enlarged. Illustrated with 28 plates. (First Issue.) London: Printed for W. Strahan, etc., 1770. 8vo. (R.A.S.E., B.M.)

——— Second Edition, Corrected and enlarged. (Second Issue.) London: Printed for W. Strahan, etc., 1771. 8vo. (R.A.S.E., Bodl.)

——— Extracts from Mr. Young's Six Months' Tour through the North of England. By James Sharp. (Illustrated with 7 plates.) N.pl., 1774. 8vo. (B.M., R.A.S.E., Bodl.)

——— (German). 2 Vols. Leipzig, 1772. 8vo. (Preussische Staatsbibl., Berlin.)

The Expediency of a Free Exportation of Corn at this time; with Some Observations on the Bounty and its Effects. London: Printed for W. Nicoll, 1770. 8vo. (B.M., R.A.S.E.)

——— Second Edition. London: Printed for W. Nicoll, 1770. 8vo. (R.A.S.E., U.L.C.)

The Farmer's Guide in Hiring and Stocking Farms. Containing an Examination of many Subjects of great Importance both to the Common Husbandman in Hiring a Farm; and to a Gentleman on Taking the whole or Part of his Estate into his own hands. Also, Plans of Farm-yards, and Sections of the Necessary Buildings. 2 Vols. London: Printed for W. Strahan, etc., 1770. 8vo. (R.A.S.E., B.M., U.L.C.)

——— Reprinted. Dublin: Printed for J. Exshaw, etc., 1771. 8vo. (Bodl.)

A Course of Experimental Agriculture; Containing an exact Register of all the Business Transacted during Five Years on near Three Hundred acres of various Soils; the whole stated in near Two Thousand Original Experiments. 2 Vols. London: Printed for J. Dodsley, 1770. 4to. (R.A.S.E., B.M., U.L.C.)

——— Reprinted in 4 Vols. Dublin: Printed for J. Exshaw, etc., 1771. 8vo. (N.L.W., School of Agriculture Library, Cambridge.)

Rural Economy; or, Essays on the Practical Parts of Husbandry. To which is added, the Rural Socrates; Being Memoirs of a Country Philosopher. London: Printed for T. Becket, 1770. 8vo. (R.A.S.E., B.M., Bodl., U.L.C.)

——— Reprinted. Dublin: Printed for J. Exshaw, etc., 1770. 8vo. (R.A.S.E.)

——— Second Edition, Corrected. London: Printed for T. Becket, 1773. 8vo. (R.A.S.E., U.L.C.)

——— Reprinted with the Title, The Rural Socrates; to which is added Essays on the Practical Parts of Husbandry. London: Sold by Constable Sewell, 1779. 8vo. (R.A.S.E.)

Proposals to the Legislature for Numbering the People; Containing some Observations on the Population of Great Britain, and a Sketch of the Advantages that would probably accrue from an exact Knowledge of its Present State. London: Printed for W. Nicoll, 1771. 8vo. (R.A.S.E., B.M., U.L.C.)

The Farmer's Tour through the East of England; Being the Register of a Journey through various Counties of this Kingdom, to enquire into the State of Agriculture, etc. (Illustrated with 28 plates.) 4 Vols. London: Printed for W. Strahan, etc., 1771. 8vo. (R.A.S.E., B.M., Bodl., U.L.C.)

——— (German.) 2 Vols. Leipzig, 1775. 8vo. (Preussische Staatsbibl., Berlin.)

The Farmer's Kalendar; or, Monthly Directory for all Sorts of Country Business: By an Experienced Farmer. London: Printed for Robinson and Roberts, 1771. 8vo. (R.A.S.E.)

——— Second Edition, Greatly enlarged and improved. London: Printed for G. Robinson, 1778. 8vo. (R.A.S.E.)

——— New Edition, Greatly enlarged and improved. (With 2 plates.) London: Printed for R. Phillips, 1804. 8vo. (R.A.S.E., B.M., Bodl., U.L.C.)

——— Sixth Edition, Greatly enlarged and improved. London: Printed for R. Phillips, 1805. 8vo. (R.A.S.E., B.M.)

——— Eighth Edition, Greatly enlarged and improved. London: Printed for R. Phillips, 1809. 8vo. (R.A.S.E., B.M., U.L.C.)

——— Tenth Edition, Greatly enlarged and improved. London: Printed for R. Phillips, 1815. 8vo. (R.A.S.E., B.M.)

——— Twelfth Edition, Corrected, and Several new Chapters added, by J. Middleton. (With 12 plates.) London: Printed for Sir R. Phillips, etc., 1822. 8vo. (R.A.S.E.)

——— Thirteenth Edition. London: Printed for Sir R. Phillips, etc. 1823. 8vo. (N.L.W.)

——— Twenty-first Edition, Re-written and extended. By J. C. Morton. With Numerous Illustrations. London: 1862. 8vo. (R.A.S.E., B.M., Bodl., U.L.C.)

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Political Essays Concerning the Present State of the British Empire. London: Printed for W. Strahan, and T. Cadell, 1772. 8vo. (B.M.)

Essays on the Spirit of Legislation, in the Encouragement of Agriculture, Population, Manufactures, and Commerce. Translated from the original French. London: Printed for W. Nicoll and G. Robinson, 1772. 8vo. (R.A.S.E.)

Observations on the Present State of the Waste Lands of Great Britain. Published on the Occasion of the Establishment of a New Colony on the Ohio. London: Printed for W. Nicoll, 1773. 8vo. (R.A.S.E., B.M., U.L.C.)

Political Arithmetic. Containing Observations on the Present State of Great Britain and the principles of her Policy in the Encouragement of Agriculture. London: Printed for W. Nicoll, 1774. 8vo. (R.A.S.E., B.M., U.L.C.)

——— (French). Trad. par M. de Freville. 2 Vols. La Haye, 1775. 8vo. (Bibl. Nat.)

——— (German). Konigsberg, 1777. 8vo. (Preussische Staatsbibl., Berlin.)

Political Arithmetic, Part II. Containing Considerations on the means of Raising the Supplies Within the Year. Occasioned by Mr. Pulteney's Pamphlet on that Subject. London: Printed for T. Cadell, 1779. 8vo. (R.A.S.E., B.M., Bodl.)

A Tour in Ireland: with General Observations on the Present State of that kingdom: Made in the Years 1776, 1777 and 1778, and brought down to the end of 1779. (With 2 plates.) London: Printed for T. Cadell and J. Dodsley, 1780. 4to. (R.A.S.E., B.M., Bodl., U.L.C.)

——— Reprinted in 2 Vols. with Frontispiece only. Dublin: Printed for Messrs. Whitestone, Sleater, etc., 1780. 8vo. (R.A.S.E., U.L.C.)

——— Second Edition in 2 Vols. (Illustrated with 5 plates.) London: Printed by H. Goldney, for T. Cadell, 1780. 8vo. (R.A.S.E., B.M., U.L.C.)

——— Edited with Introduction and Notes by A. W. Hutton. With a Bibliography by J. P. Anderson. 2 Vols. (Bohn's Library.) London: 1892. 8vo. (R.A.S.E., B.M., Bodl., U.L.C.)

——— Extracts (The British Tourists, by William Mavor, Vol. 3). London: 1798. 12mo. (B.M.)

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——— Extracts (A Collection of Voyages and Travels, by J. Pinkerton, Vol. 3, pp. 811–76). London: 1809. 4to. (B.M., Bodl.)

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——— (French). Traduit par C. Millon. 2 Vols. Paris: 1800. 8vo. (R.A.S.E., B.M.)

——— (German). 2 Vols. Leipzig: 1780. 8vo. (Preussische Staatsbibl. Berlin.)

An Enquiry into the Legality and Expediency of Increasing the Royal Navy by Subscriptions for Building County Ships, to which are added, Observations on the State of the Taxes and Resources of the Kingdom on the conclusion of the Peace. Bury St. Edmund's: Printed by Green and Gedge, 1783. 8vo. (R.A.S.E.)

Annals of Agriculture and other Useful Arts. Collected and Published by Arthur Young, Vols. 1–46. London: Printed by H. Goldney, etc., 1784–1815. 8vo. (B.M., R.A.S.E.)

The Question of Wool Truly Stated. In which the Facts are Examined for and against the Bill now depending in Parliament. London: Printed for W. Nicoll, 1788. 8vo. (R.A.S.E., B.M., U.L.C.)

A Speech on the Wool Bill, that might have been spoken in the House of Commons. London: Printed for W. Nicoll, 1788. 8vo. (R.A.S.E.)

A Letter on Tithes to Arthur Youn,g with his remarks on it; and a Second Letter in answer to those remarks. London: Printed for T. Cadell, 1792. 8vo. (R.A.S.E., B.M.)

An Address Proposing a Loyal Association to the inhabitants of the Hundreds of Thedwastry and Thingoe. (Single Sheet.) N.pl., 1792, fol. (B.M.)

Travels, during the Years 1787, 1788 and 1789. Undertaken more particularly with a view of ascertaining the Cultivation, Wealth, Resources and National Prosperity of the Kingdom of France. (With three maps.) Bury St. Edmund's: Printed by J. Rackham for W. Richardson, 1792. 4to. (R.A.S.E., B.M., U.L.C., Bodl.)

——— Reprinted, in 2 Vols. (With 3 maps. Dublin: Printed for Messrs. R. Cross, P. Wogan, etc., 1793. 8vo. (R.A.S.E.)

——— Second Edition, Vol. I. (With two maps.) London: Printed for W. Richardson, 1794. 4to. (R.A.S.E., B.M.)

Vol. 2. Bury St. Edmund's: Printed by J. Rackham for W. Richardson, 1794. 4to. (R.A.S.E., B.M., Bodl., U.L.C.)

——— Reprinted, a few Chapters and the Maps omitted. (A collection of voyages and travels by J. Pinkerton, Vol. 4, pp. 77–676.) London: 1809. 4to. (B.M., Bodl.)

——— With an Introduction. Biographical Sketch, and Notes by M. Betham-Edwards. (Bohn's Library.) London: 1889. 8vo. (R.A.S.E., B.M.)

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——— Fourth Edition, Corrected and Revised. London: 1892. 8vo. (R.A.S.E., Bodl., U.L.C.)

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Travels in France and Italy, during the Years 1787, 1788 and 1789. (Introduction signed T. Okey.) (Everyman's Library.) London: 1915. 8vo. R.A.S.E., Bodl.)

Voyages en France pendant les années 1787–88–89 et 90, Traduit de l'Anglais par F. S. Avec des notes et observations par M. de Casaux. (With maps of Route and Climate.) 3 Vols. Paris: chez Buisson, 1773. 8vo. (B.M.)

——— Seconde Édition. (With maps of Soil and Climate.) 3 Vols. Paris: chez Buisson, 1794. 8vo. (R.A.S.E., B.M.)

——— Nouvelle Traduction par M. Lesage, précédée d'une introduction par M. Léonce de Lavergne. 2 Vols. Paris: 1860. 12mo. (R.A.S.E.)

——— Seconde Édition. 2 Vols. Paris: 1882. 8vo. (R.A.S.E., B.M.)

——— Observations sur l'état de l'agriculture en France, extraites des Voyages d'Arthur Young, par le c. Silvestre. (No place or date.) 8vo. (Bibl. Nat.)

Voyage en Italie pendant l'année 1789, traduit de l'Anglais par F. Soules. Paris: 1796. 8vo. (B.M., Bibl. Nat.)

——— Traduction de M. Lesage, avec une introduction par L. de Lavergne. Paris: 1860. 12mo. (B.M., Bibl. Nat.)

Reisen durch Frankreich und einen Theil von Italien in dem Jahren 1787 bis 1790. Mit einigen Anmerkungen begleitet von E. A. W. Zimmerman. Nebst einer von Sotzmann gezeichneten Karte. 3 vols. Berlin, 1793–5. 8vo. (Preussische Staatsbibl., Berlin, B.M. Vols. 1–2 only.)

The Example of France, a Warning to Britain. London: Printed for W. Richardson, 1793. 8vo. (R.A.S.E., Bodl., U.L.C.)

——— Second Edition. Bury St. Edmund's: Printed by J. Rackham, for W. Richardson, 1793. 8vo. (B.M., U.L.C.)

The Example of France, a Warning to Britain. Third Edition. Bury St. Edmund's: Printed by J. Rackham, for W. Richardson, 1793. 8vo. (B.M., U.L.C.)

——— Fourth Edition. London: Printed for W. Richardson, 1794. 8vo. (R.A.S.E., B.M., Bodl.)

——— An Abstract. London: Printed for W. Richardson, 1793. 8vo. (B.M.)

——— (French). L'example de la France d'apres la seconde édition. Bruxelles: 1793. 8vo. (R.A.S.E., B.M.)

——— Seconde Édition. Quebec: 1794. 8vo. (R.A.S.E.)

——— (German). Die Franzosische Revolution. Hanover: 1793. 8vo. (Preussische Staatsbibl., Berlin.)

——— (Italian). L'Evempio della Francia. Italia: 1794. 12mo. (Bibl. Nat.)

Postcript to the Survey of Hampshire. (By A. and W. Driver.) In a letter to Sir John Sinclair. London. Printed by C. Macrae, 1794. 4to. (R.A.S.E., B.M.)

General View of the Agriculture of the County of Suffolk. (With map of soil.) London: Printed for C. Macrae, 1794. 4to. (R.A.S.E., B.M., Bodl.)

——— Another edition. (With map and 2 plates.) London: Printed for G. Nicol and the Board of Agriculture, 1797. 8vo. (R.A.S.E., B.M., Bodl.)

——— Third Edition. London: Printed for G. and W. Nicol and the Board of Agriculture, 1804. 8vo. (R.A.S.E.)

——— Third Edition. (Another issue.) London: Printed for R. Phillips, 1804. 8vo. (U.L.C.)

——— Another Edition. London: Printed for Sherwood, Neely, and Jones, 1813. 8vo. (London Library.)

An Idea of the Present State of France, and of the Consequences of the Events passing in that kingdom. The Second Edition. London: Printed for W. Richardson, 1795. 8vo. (R.A.S.E., U.L.C.) (First published in the Annals of Agriculture, Vol. 23, p. 274.)

The Constitution Safe without Reform: Containing some Remarks on a Book entitled The Commonwealth in Danger, by J. Cartwright. Bury St. Edmund's: 1795. 8vo. (R.A.S.E., B.M., Bodl.)

National Danger and the Means of Safety. London: Printed for W. Richardson, 1797. 8vo. (R.A.S.E., B.M., Bodl.)

An Enquiry into the State of the Public Mind amongst the Lower Classes: and on the Means of Turning it to the Welfare of the State. In a Letter to W. Wilberforce. London: Printed for W. J. and J. Richardson, 1798. 8vo. (R.A.S.E., B.M.)

General View of the Agriculture of the County of Lincoln. (With 3 maps and 11 plates.) London: Printed for G. Nicol and the Board of Agriculture. 1799. 8vo. (R.A.S.E., B.M., Bodl., U.L.C.)

——— (Another Edition). London: Printed for R. Phillips, 1808. 8vo. (Rothamsted.)

——— Second Edition. London: Printed for Sherwood, Neely, and Jones, 1813. 8vo. (School of Rural Economy, Oxford.)

The Question of Scarcity Plainly Stated, and Remedies considered. With Observations on Permanent Measures to keep Wheat at a more Regular Price. London: Sold by W. J. and J. Richardson, 1800. 8vo. (R.A.S.E., B.M.)

Le Cultivateur Anglois, ou œuvres choisies d'Agriculture et d'Economie rurale et Politique d'Arthur Young. Traduit de l'Anglois. 18 Vols. Paris: 1800–1. 8vo. (B.M.)

An Inquiry into the Propriety of Applying Wastes to the Better Maintenance and Support of the Poor. Bury: Printed by J. Rackham, 1801. 8vo. (B.M.)

Letters from His Excellency George Washington to Arthur Young, containing an Account of his Husbandry with a map of his Farm, his Opinions on Various Questions in Agriculture; and many Particulars of the Rural Economy of the United States. London: Richardson, 1801. 8vo. (B.M.)

——— (Another Edition). Alexandria: Printed by Cottom & Stewart, 1803. 8vo. (B.M.)

——— Edited by F. Knight. Washington: 1847. 4to. (R.A.S.E.)

Georgical Essays: By A. Hunter. 6 Vols. On Top-dressings: Vol. 1, Essay 8. On the Size of Farms: Vol. 4, Essay 27. On Hogs and their Management: Vol. 5, Essay 4. On Carrots: Vol. 5, Essay 27. On Summer Fallowing: Vol. 6, Essay 8. York: 1803–4. 8vo. (R.A.S.E., B.M.)

General View of the Agriculture of Hertfordshire. (Illustr. with map and 9 plates.) London: Printed for G. and W. Nicol, 1804. 8vo. (R.A.S.E., B.M., Bodl.)

General View of the Agriculture of Hertfordshire. (Another Issue.) London: Printed for R. Phillips, 1804. 8vo. (R.A.S.E.)

——— (Another Edition). London: Printed for Sherwood, Neely and Jones, 1813. 8vo. (U.L.C.)

General View of the Agriculture of the County of Norfolk. (Illustrated with map and 7 plates.) London: Printed for G. and W. Nicol, 1804. 8vo. (R.A.S.E., B.M., Bodl.)

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An Essay on Manures. (Bath and West of England Society, Letters and papers, Vol. 10, p. 97.) Bath: Printed by J. Cruttwell, 1805. 8vo. (R.A.S.E., B.M., Bodl.)

——— Abridged (Journal of Natural Philosophy. By W. Nicholson, Vol. 23, pp. 120, 187, 284). London: Printed by W. Stratford, 1809. 8vo. (B.M., Bodl.)

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General View of the Agriculture of the County of Essex. (Illustrated with map and 57 plates.) In 2 Vols. London: Printed for R. Phillips, 1807. 8vo. (R.A.S.E., B.M., U.L.C., Bodl.)

——— (Another Edition). London: Printed for Sherwood, Neely, and Jones, 1813. 8vo. (R.A.S.E.)

General Report on Enclosures. Drawn up by order of the Board of Agriculture. London: Printed by B. McMillan, 1808. 8vo. (R.A.S.E., B.M.)

On the Advantages that have Resulted from the Establishment of the Board of Agriculture. London: Printed for R. Phillips, 1809. 8vo. (R.A.S.E., B.M.)

View of the Agriculture of Oxfordshire. (Illustrated with map and 27 plates.) London: Printed for R. Phillips, 1809. 8vo. (R.A.S.E., B.M., U.L.C., Bodl.)

——— (Another Edition). London: Printed for Sherwood, Neely, and Jones, 1813. 8vo. (Bodl.)

On the Husbandry of Three Celebrated British Farmers, Messrs. Bakewell, Arbuthnot, and Ducket. (With 3 plates.) London: Printed for G. and W. Nicol, 1811. 8vo. (R.A.S.E., B.M.)

——— (Another Issue). London: Printed by B. McMillan, 1811. 8vo. (R.A.S.E.)

An Enquiry into the Progressive Value of Money in England, as marked by the price of Agricultural products. (Issued as Vol. 46, No. 270 of the Annals of Agriculture.) London: Printed by B. McMillan, 1812. 8vo. (B.M., Bodl.)

Baxteriana: Containing a Selection from the Writings of Baxter. London: Printed for J. Hatchard, 1815. 8vo. (B.M., Bodl., U.L.C.)

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INTRODUCTION.

I. Objects of Inquiry.

Ever since the sixteenth century, when wool became the chief source of England's wealth, popular indignation has been raised against those who converted tillage land to pasture. Landlords and farmers were looked upon as being endowed with a sacred heritage in the soil of England and it was their duty to produce the maximum of food from this soil. At the same time they would employ a large peasant class in producing this food, men who in times of peace were an element of great strength and stability in the country and in war were the most virile force to resist foreign conquest. At the end of the Great War the stringent efforts at food production of the last four years were relaxed and once more thousands of acres reverted to grass, but no one could find an effective means to stay this movement. Even those most ignorant of agricultural conditions felt justified in joining in the general clamour; but there was little accurate and reliable evidence to show the respective merits of grass and arable land as a means of feeding the nation and providing employment for its people. Accordingly it was thought that useful material might be furnished by a detailed economic survey of a large number of farms in two sharply contrasted districts—one characterised by plough and seed drill, the other by the shepherd and his dog watching over great expanses of pasture land. Such an inquiry it was hoped would show what was the actual output of this much-abused grassland as compared with that of a typical corn-growing district.

II. METHODS FOLLOWED.

In order to obtain the results required it was necessary to try and visit every farmer within a certain area and to obtain from him detailed information of the management of his land during one year, the same year, namely 1922–1923, being taken in all cases. Thus the acreages under various crops in the harvest year of 1922 were obtained and with them the quantities of cereals and other crop products sold off the farm. It was taken that all crops not accounted for as sold were used on the holding to maintain livestock. As a natural supplement to the crops of the summer of 1922 full details were noted for the numbers of different classes of livestock kept during the winter of 1922–1923, and consequently maintained on the produce of the 1922 harvest of corn, roots, hay, straw, etc. The numbers and average weights of all animals sold were obtained together with dairy produce, wool, etc., leaving the holding. In this way a complete table of the output in one farming year could be drawn up, with a reasonable degree of accuracy, for every farm. At the same time notes were made of the rent and rates, the quantity of labour employed, and the weights of fertilisers and purchased feeding stuffs consumed on the land, and the capital invested in implements and machinery. Thus a full picture was obtained not only of the produce of each separate farm, but of the main heads of expenditure incurred in this production, so that finally a balance might be held between output and effort in the two districts under consideration.

The ideal aimed at was to visit every farm, large and small, well-managed or ill-managed, within a certain radius, so that the picture would not give undue significance to the brighter and more prosperous at the expense of the less satisfactory farms. As a result of the break-up of large estates many farms had recently changed hands and the new occupiers could not furnish all the necessary information. This involved the omission of these holdings from the final report. Also where extensive dealing complicated the system of management or where farms were used for some special purpose such as the breeding of hunters, which might be classed as a hobby rather than as economic food production, they had to be omitted. With these exceptions it was found possible to include practically every farm of importance; more smallholders might have been visited, but owing to the limits of time available for the work their numbers were limited to give approximately the same number of family holdings as of those in the larger size groups.

III. CLASSIFICATION OF HOLDINGS.

Although the main object of the survey was to obtain a general comparison between grass and arable farming, it was thought that the information obtained might be used in exploring other large economic problems, notably the influence of size on the economic working of farms. Accordingly the farms were classified under the following headings:—

A. Farms over 500 acres.
B. „ from 500–300 acres.
C. „ „ 300–100 acres.
D. „ under 100 acres.

Up to 100 acres a farm remains a "family unit," and very little hired labour is employed, so this appeared to be one natural division, which might be termed the small-holding group. Over 100 acres and up to 500 acres two groups each with a range of 200 acres were adopted, and proved satisfactory as they bring out the various problems under discussion. Sufficient farms over 500 acres were visited to ensure the figures obtained for this group being representative of large scale or ranching methods in the two main districts surveyed.

The soil and system of farming were very uniform through the whole arable district, so that it was unnecessary to attempt to divide the farms up according to their system of management. In the grass district, however, two broad divisions were at once obvious, namely the pure grazing and the milk-producing farms, where the systems followed generally differed so widely as to make it very misleading to classify them together. In some cases feeding cattle and milking stock are run side by side on the same holding, when the relative importance of sales from meat and milk had to be considered in deciding which should be placed under the heading of "meat" and which under "milk" farms.

SECTION I.

DESCRIPTION OF AREAS SURVEYED.

In order to make the comparison as clear and convincing as possible between the farming systems under consideration, it was necessary to find two areas sharply contrasted one with another and at the same time each as similar and homogeneous as possible within their own limits. One of them must be dominantly arable and the other dominantly grass, while the interest and value of the survey would be greatly increased if districts were taken where the same systems of farming, and the same conditions of soil, climate, markets, etc., prevailed throughout the whole area. These conditions were fulfilled (1) in a district on the borders of Northamptonshire, Warwickshire and Leicestershire extending south and east from Rugby where only 4·7 per cent. of the total acreage of the farm lands visited was under the plough; (2) in a district on the extreme eastern foothills of the Cotswolds extending from Witney and Burford in the west to just beyond the Cherwell valley on the east, where 71·97 per cent. of the farm lands proved to be arable in 1922.

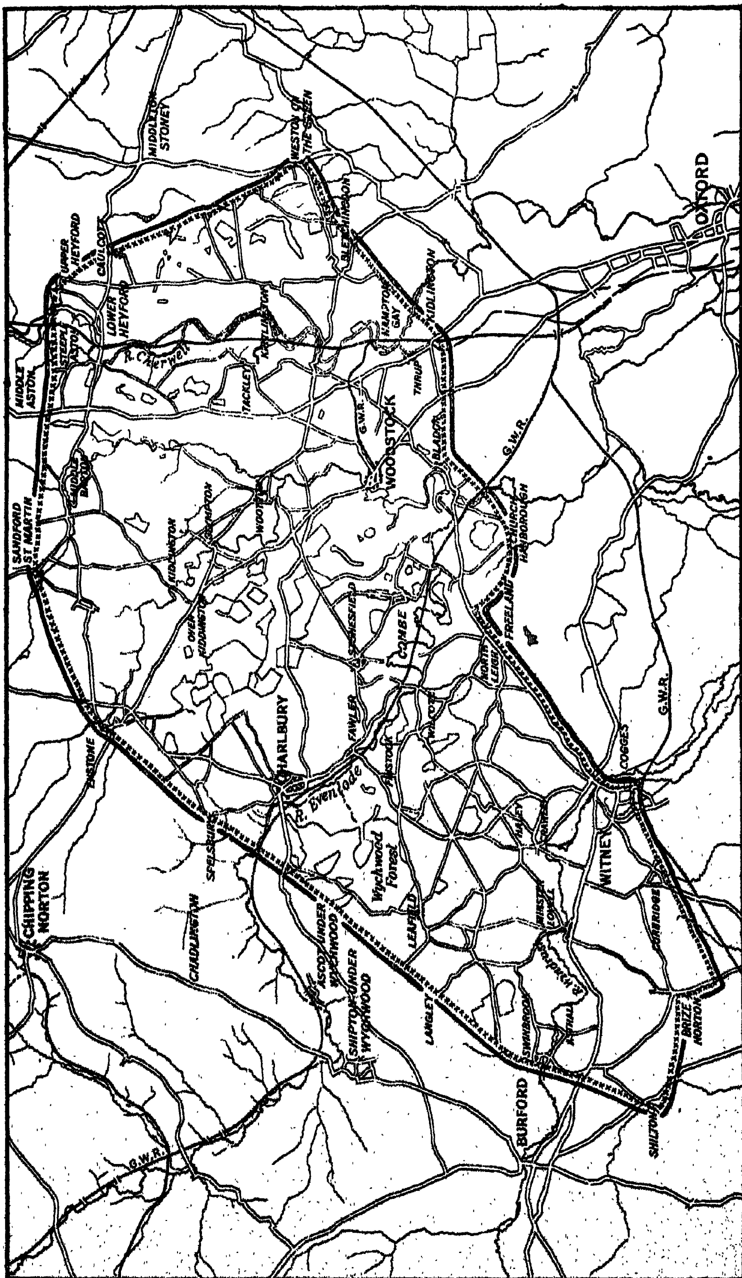
I. General Impression of the Districts.

In a survey of Northamptonshire made on behalf of the Board of Agriculture in 1794, James Donaldson opened his report with these words, comparing the Midlands favourably with his native Scotland: "The surface of this country is as peculiarly advantageous for cultivation as it is delightful and ornamental. . . . Here there are no dreary wastes nor rugged and unsightly mountains to offend the eye or interrupt the view. . . . Every hill is cultivated or may be left in a profitable state of pasturage, and every inequality in the surface contributes to its ornament and beauty." Standing on some great mound and looking over a wide expanse of grassland along the Warwickshire and Northamptonshire border the same peace and contentment characterise the landscape to-day. As far as the eye will reach stretches out a great sea of grass, thickly clustered with tall elms, a paradise to the foxhunter but an eyesore to the land-reformer. If the season be summer everywhere bunches of fine cattle are grazing, and sheep nibble the firm carpet of turf on every side. But there are few signs of human activity, cottages fall into decay, fine buildings are empty and useless, situated in the middle of field upon field of grass, and hardly an acre of corn or fallow land can be seen to break the monotony of the green plain below.

Very different is the feeling inspired by looking over the deep open folds of the Cotswolds from some high point by Leafield or Burford, though it does not merit the virulent abuse of Arthur Young, and Cobbett who sums it up as "A very poor, dull and uninteresting country all the way to Oxford" [1] (from Cheltenham). The district has a character and beauty peculiar to itself, with its clean sweeps of brown plough land, perfect villages, and stone walls; while clumps of beeches take the place of the duller elms of Northamptonshire. But it is a thin, starved country from the purely utilitarian point of view, where the soil gives but a poor return for the labour expended on it and seems to absorb all manures and cry out hungrily for more as soon as they are given to it.

In the Northamptonshire district it is quite a rare thing to

[1] Cobbett, "Rural Rides." *Journal* for November 17, 1821.



Oxfordshire—Arable.

find farmhouses situated in isolated positions, they are almost all crowded together in the main village street. As a result of this much of the land is awkwardly situated, possibly two or three miles from the occupier's house and main buildings, which means that some of the remoter fields are not as well stocked and tended as they should be. Where the land is entirely grass and there are very few horses to walk out several miles to their work every day, this is not as severe a handicap as it would be in an arable district, but even so the system would appear to lead to a good deal of waste of time and energy. Farmhouses are generally placed more centrally to the land which goes with them in the Cotswold district, and where the homesteads are placed in the village a good deal of complaint is heard against this arrangement. Where homesteads are in the middle of the farm, the farmer and his family undoubtedly live a less sociable life, but this disadvantage is far outweighed by more economic working of the holding.

II. GEOGRAPHICAL DESCRIPTION OF AREAS.

A. The grass district was roughly bounded by a line drawn from Rugby along the Market Harborough road to South Kilworth, then across the Avon south to West Haddon in Northamptonshire. From there it ran to Daventry in Northamptonshire and so over the Warwickshire border in a north-west direction till the Rugby-Southam road was reached. This road was followed through Dunchurch up to Rugby. The greatest length of the area thus covered is 13 miles, and the greatest breadth 9 miles.[1]

Lower lias clay is the prevailing soil, though it fades into lighter loams and sands as the higher ground is reached, and on the eastern boundary marlstone is met with.

This district is admirably served with railways, namely the Rugby to Banbury branch of the old G.C.R. running through the south-west portion, the main L.M.S. line through the centre, and the Rugby to Peterborough line to the north-east. Rugby is the principal market, while Northampton market is also used by many farmers, and a little business is done through such small local markets as Daventry. On the whole the farms are well watered by the Avon to the north and the Rainsbrook and the Leam to the south, and the rainfall averages 27 in.[2]

Some farms had to be omitted from the survey of the Rugby area as they possessed a rather higher percentage of arable land than was required. These were mostly situated on the higher

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[1] The areas surveyed are encircled by a dark line on the appended maps.

[2] The figures for rainfall are taken from records, extending over 35 years, compiled by H. R. Mill for the Geological Survey of Northants and Oxon, 1910.

Rugby and Market Harborough—Grass.

ground, namely on the ridge running from Barby to Daventry and then from Ashby St. Ledgers to Watford, where the soil becomes lighter than in the valleys.

Outside this area six farms were visited in the famous Market Harborough district, situated in and about the Welland valley, in order that an estimate might be arrived at of the productivity of what is undeniably some of the finest pasture land in all England.

B. The road from Bladon to Witney and then on to Brize Norton bounded the arable area on its southern side, then a turn was taken north-west to Swinbrook, just short of Burford, and from here north-east through Spelsbury to Enstone, Sandford St. Martin and Steeple Aston on the north. Going over the Cherwell valley eastward to the little hamlet of Caulcott the boundary turned south through Weston-on-the-Green, Bletchington and Kidlington back to Bladon.

These divisions are by no means arbitrary but represent that strip of poor land on the oolite most easily accessible from Oxford and characterised by a high proportion of tillage to grassland. In the western corner a good deal of forest marble soil, known locally as "pebbley land," is met with where parts of the old forest of Wychwood have been brought under cultivation within quite recent years.

The G.W.R. lines from Oxford to Banbury in the east, to Kingham in the centre and to Witney and Fairford to the south run through this area, and follow the deep depressions made by the Cherwell, the Evenlode and the Thames respectively. Oxford and Banbury are the most important markets for this area, but small auction marts also exist at Witney, Woodstock and Charlbury. The district is signally isolated from any big consuming or manufacturing centre.

Apart from the three main rivers along which the railways run the area is very badly watered, in fact lack of adequate and reliable supplies of water is one of the chief causes limiting the scope and progress of agriculture in this portion of Oxfordshire.[1]

Along the river beds there run strips of quite good grassland, principally devoted to dairying; farms with much of this land were omitted from the survey, as their percentage of arable fell below that which would warrant their being termed true arable farms.

III. GENERAL FARMING PRACTICE IN THE TWO AREAS.

Before examining the production of the farms in detail it is desirable to give a brief sketch of the general system of farm management in both areas.

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[1] The rainfall averages 27 inches. H. R. Mill, *cit.* p. 4.

1. *Rugby District.*—In compiling the tables given in the Appendix the grass farms have been broadly divided into those whose principal source of revenue is from milk and from fattening cattle and sheep respectively. This follows the natural division of the area where the first-class land is devoted almost exclusively to fattening stock, while the poorer land is used largely for dairying, in conjunction with sheep and a few young cattle, or old beasts for fattening. On the better land sheep only are kept in the winter while cattle are brought in as stores in the spring and sold out fat during the summer and early autumn, several lots being disposed of in this way in the course of a season if the grass grows sufficiently fast. Where milking herds are kept there is a rather larger proportion of arable land in order to provide roots and straw for the cows when they are tied up in winter.

The skilful management of good grass land is a much more difficult art than most mixed farmers give it credit for being. The manure must be collected from under the hedgerows, where it is mostly deposited by the beasts seeking shade and protection in summer, and spread evenly over the whole field. Hedges must be cut and laid regularly and kept in strong growing condition in order to keep large bullocks within bounds; the ditches must be well scoured and the ant-hills cut and levelled. But above all a close, even turf must be maintained if the most is to be got out of the land; and this requires great judgment in buying the right number and class of stock at the right moment, so that the grass is not destroyed by too close feeding nor yet allowed to grow rank and coarse through not being eaten down in time.

Most of the smaller grass farms concentrate largely on milk, as that gives a regular source of income every month in the year, and provides profitable occupation for the smallholder in winter as well as summer, which he would not find on a purely grazing farm of much under 100 acres.

2. *Market Harborough District.*—The Market Harborough farms were situated on a rich silt soil in the Welland valley and on a first-rate warm clay stretching up from the river. Much of this land will feed even more than a bullock and a sheep to the acre without the assistance of much cake, but it is said to be too "strong" and rich for anything but fully grown beasts in very fresh condition. Very few cattle are wintered here as they would "poach" the land and spoil the summer grazing, fattening sheep being the principal stock kept in winter. As a rule these sheep are sold as early as possible in spring to leave the land entirely to the magnificent weighty cattle that are put on it as soon as the spring growth of grass starts. As evidence of the superlative quality of this land it is interesting to note

that the average rent per acre for the 2,233 acres of Welland land under consideration was £2 6*s*. 2*d*. in 1922 against £1 13*s*. 5*d*. per acre for the 18,710 acres of Rugby grass land, much of which is of very good quality.

The Harborough farms are devoted exclusively to grazing, except for a few cows kept to provide the farmers' own households with milk.

3. *Oxfordshire District.*—Summed up in two words, "corn and sheep" may be said to describe the Oxfordshire farms, and the one is the logical accompaniment of the other. The soil is thin and poor, generally lying but a few inches deep over the hungry limestone rock, and so it requires the constant "treading" and manuring of folded sheep. It is true that the number of sheep kept in this district has declined seriously since 1914, but the hurdle pens with their great Oxford Down sheep still remain a characteristic feature of the windswept Cotswold Hills. More revenue is derived from wheat than from any other single commodity, sales of barley being comparatively small, as many of the farms surveyed cannot produce a first-rate malting sample, and at the present time of depressed markets for barley the growers prefer to turn it into bacon.

In most instances a rough four-course rotation is followed, but in the year 1922 this was rather upset by a tendency to leave down clover leys for several years where they would stand, in order to economise labour and cut down the outgoings in every possible way. On some farms potato growing takes an important place, whilst on a few others milking herds are kept; but as a general rule, cereal and root crops, sheep, pigs and store cattle dominate all other interests. Much of the grass land is practically worthless except as an exercising ground for growing stock; it carries a miserable wiry turf and is only left in grass because of being too thin and sour to be worth cultivating.

Generally speaking, this is not a district likely to attract very enterprising or competent farmers from other counties, as it is heartbreaking work struggling with this poor soil. For in wet weather it is intractable and sticky to work, while at other times it suffers very badly from drought, as the limestone rock holds but little moisture to nourish the plant in scorching weather. It is in fact hard to see what system can be devised to make this land worth tilling at present prices, though it would be a tragedy to see it all reverting to a poor sheep run.

SECTION II.

EXAMINATION OF PRODUCTION.

I. CROPS.

Full details of the systems of cropping and the quantities of crop products sold cannot be given here, but the figures obtained have been summarised in a short table which shows the relative importance of various crops in the two districts.

TABLE 1.—*Comparison of Total and Arable Acreages.*

	Total Acreage	Total Arable Acreage	Per cent. Arable to Total Acreage
Arable District	23,857	17,141	72
Rugby Grass District . . .	18,710	883	4·7

TABLE 2.—*Extent and Relative Importance of Crops.*

Crops	Acreages under Crops				Sales per 100 Acres of Total Area	
	Arable District		Grass District		Arable District	Grass District
	Actual	Per cent. Total Arable Area	Actual	Per cent. Total Arable Area	Quantity Sold	Quantity Sold
Wheat . . .	3,988	23·3	268	30·4	211·3 cwt.	20·4 cwt.
Barley . . .	3,072	17·9	98	8·8	108·0 ,,	3·1 ,,
Oats	2,640	15·4	143½	16·2	27·1 ,,	·7 ,,
Beans and Peas .	714	3·3	42	4·7	2·2 ,,	1·9 ,,
All cereals and pulses . . .	10,413	59·9	551	60·1	—	—
Potatoes . . .	302	1·8	6½	·7	6·74 tons	·10 tons
Root and green fodder crops .	2,573	15·0	229	25·9	—	—
Rotation grasses, Sainfoin and Lucerne . .	3,315	19·3	91	10·4	1·75 tons	—
Bare fallow . .	672	3·9	42	4·6	—	—

Notes on the Various Crops.

A. *Cereals.*—Wheat is the most important single crop grown in the arable district, but the yield is usually rather low, not more than 3½ qrs. to the acre; Squarehead Master, Standard Red, Yeoman and Marshal Foch are the varieties preferred. In the grass district wheat plays relatively an even more important part and a good yield is obtained, not less than 4½ qrs. per acre. Yeoman, again, is a very popular variety. The bulk of the wheat crop is sold off the Oxfordshire farms, only a little tail and inferior grain being retained for stock feeding; whereas much of the large barley acreage is kept for feeding purposes. It is interesting to note that the foundation of a Co-operative Bacon Factory at Kidlington has provided a substantial encouragement to the Oxfordshire farmers to fatten more pigs, and so has given a new opening for the disposal of a barley crop which was very hard to sell at a reasonable price in 1922. Chevalier and Archer-Plumage are the breeds of barley grown almost exclusively.

Oats are grown principally to provide food for horses and other livestock on the farm, but a fair quantity is sold off some of the Cotswold farms; those grown in the Rugby area are sold for feeding hunters, or used for the winter feeding of dairy cattle. Beans and peas do not take a very important place in either area.

B. *Root Crops.*—Swedes and turnips occupy the greater part of the root break in the arable district, as the soil and climate of the Cotswolds are not adapted to a system of catch cropping, which would enable many more sheep to be maintained. With the exception of a few mangolds drawn off to milking and other cattle all the roots and green fodder crops are fed on the land.

In the Rugby district 25·9 per cent. of the arable land is occupied by root crops, as compared to 15 per cent. in Oxfordshire; this difference is due to the necessity for succulent food on pasture farms to eke out the grass in winter, where much stock is retained at that time of year. On many grass farms where there are only a few acres of ploughed land these are devoted to mangolds exclusively year after year, and they receive frequent heavy dressing of farmyard manure, probably more than they can do justice to.

C. *Rotation Grasses, etc.*—Very little meadow hay is taken in the Cotswolds, outside the river valleys, hence the large acreage under clover "seeds." This large acreage also represents an attempt to keep more livestock at a time when it is almost impossible to grow corn at a profit. In some cases difficulty was experienced in deciding whether land should be classed under the heading of permanent pasture or rotation grasses, and the length of time during which the field would probably remain under clover without becoming too thin and weedy was the deciding factor in these cases.[1]

Of the total acreage in the Rugby district it was found that 15·9 per cent. was annually mown for meadow hay, but there were no sales; it is impossible to give an accurate estimate of the yield of hay. A far larger proportion on milking than on pure grazing farms is mown, as would be expected; the figures, for instance, are as high as 27·4 per cent. for hay on milking farms of 100–300 acres, while only 14·8 per cent. of the grazing farms in the same size group is mown.

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[1] Land which would remain unploughed for more than four years was classed as permanent pasture.

In a restricted area round Charlbury growing cow grass clover for seed is an interesting feature of the cropping system. To obtain this seed a field is eaten bare with stock till May 12, and then left to be cut in August; thus an even stand is obtained, yielding a uniform sample of seed.

D. *Potatoes.*—Certain restricted areas in the Oxfordshire district have a great reputation for growing a good sample of potatoes, as, for instance, the parish of Stonesfield, and there was a fair demand for potatoes off this curious thin stony land even in the disastrous year of 1922. Arran Chief and King Edward are the prevalent varieties. It is noticeable that whenever Scotchmen have emigrated to this area they have started to grow potatoes, sometimes on farms where they had never been cultivated before on any large scale.

E. *Grass Keeping.*—In the grazing district under review regular sales are held every spring and autumn of "summer" and "winter keeping," that is, of the grazing rights over certain fields for the summer or winter season; for the rent paid hay and shepherding as well are usually provided. The acreage thus rented has been added to the regular acreages of the farms in proportion to the benefit derived from the land, that is to say if a field of, say, 30 acres, is rested completely in winter and the summer keeping let off, 30 full acres are added to the farm renting this land.

II. LIVESTOCK.

In order that the stock-carrying capacity of the two districts might be compared it was necessary to reduce all classes of stock to one common denominator, namely "sheep equivalents" on the following scale:—

Cow or bullock over 3 years old	= 7	sheep
Heifer or bullock under 3 years old	= 3·5	,,
Horse over 3 years old	= 7	,,
Horse under 3 years old	= 3·5	,,
Pigs (all ages)	= 1·5	,,

These are the figures generally adopted by American investigators and recommended by Mr. C. S. Orwin. They are closely related to the comparative weights of the various classes of stock.

Working with this scale, the period during which animals were on the farm was always taken into account; thus, a full-grown bullock which was bought and sold after six months on the farm, would be represented by 3·5 sheep equivalents, whereas the same bullock if kept a whole year would be represented by 7 sheep equivalents.

The stocking of the farms in the three areas is summarised in Table 3.

TABLE 3.—*Livestock Equipment.*

	Cotswold District 23,857 acres		Rugby District 18,710 acres		Market Harborough District 2,233 acres	
	Actual Number.	As Sheep Equivalents per 100 acres	Actual Number	As Sheep Equivalents per 100 acres	Actual Number	As Sheep Equivalents per 100 acres
Sheep . .	15,297	52·17	17,686	64	2,520	79
Cattle . .	3,857	58·8	10,810	245	1,808	267
Horses . .	899	22·7	485	15	14	3·8
Pigs . .	5,640	13·5	924	2·4	4	—
Total .	11,693	147·1	29,905	326·4	4,346	349·8

Thus the stocking proves to be 120 per cent. higher on the Rugby farms and 130 per cent. higher on the Market Harborough farms than it is in the Cotswold district.

On the arable farms cattle, when converted into sheep equivalents, are the most important class of livestock, but they are very closely followed by sheep; while on the grass farms cattle occupy by far the most important position, though there are actually more sheep kept here than in the Cotswolds. Compared to the arable area horses and pigs are of little importance on the grass farms.

Systems of Stock Keeping.

A. SHEEP.—The sheep population was divided into six classes, namely: (1) Breeding Ewes; (2) Rams; (3) Lambs, meaning only those home-bred sheep sold as "lambs," *i.e.* under six months old roughly; (4) Tegs, or fattening sheep sold out when about a year old; (5) Theaves or young ewes drafted in annually to renew the flocks; (6) Sheep bought as stores and sold out subsequently, usually in fat condition. This classification gave the following results:—

TABLE 4.—*Sheep Classification.*

In month of June.

Locality	Breeding Ewes	Rams	Lambs as fat	Tegs as Stores	Theaves or Young Ewes	Sheep bought to fatten	Total Sheep
Cotswold .	5,117	103	865	4,415	971	4,786	15,297
Rugby . .	4,638	99	5,497	482	140	6,791	17,686
Harborough .	100	2	160	—	—	2,258	2,520

Sheep Management.

A. *Cotswolds.*—Very few flocks of pure Cotswold sheep are now retained; the breed once made this country famous and leaves everywhere as a monument to its past greatness wonderful churches, such as those of Burford and Northleach, but now it is out of date, for it matures slowly and yields a carcase of rather fat mutton too large for present tastes. Oxford Downs[1] and Hampshires are now left almost universally in their place, although cross breeds of all kinds, but principally Border Leicesters and Cheviots, are also creeping in. These give a larger percentage of lambs and are better mothers than the Down breeds, while they are also much hardier and cheaper to keep.

Most farmers keep a breeding flock, drafting in 20–25 per cent. of theaves to take the place of broken-mouthed ewes, a few lambs are sold, but for the most part the sheep not required for breeding are fattened out during the winter after their birth and sold weighing 60–70 lb. dead weight. But the strength of permanent breeding flocks has not yet recovered its pre-war level, and on a number of farms sheep are simply bought in autumn to eat off the roots and sold as soon as fat.

B. *Grazing Districts.*—It would be hard to name all the breeds and crosses of sheep kept in the Rugby area, but among the most important may be mentioned Cheviots, Border Leicester and Cheviot crosses, Kerry Hills, Welsh Mountain, Cluns, Radnors, Shropshires, Kents and Southdown and Kent crosses. There are a few small flocks of Oxfords kept pure and renewed from year to year; but generally ewes are bought in the mountain areas of Wales and the Scotch Border, brought down to the Midlands and rear one or two crops of lambs, after which they are sold out fat straight off the grass shortly after their lambs have been weaned. Nearly all the lambs are sold fat from June onwards through the summer, very few being kept over as "tegs." The ewes of various breeds are generally crossed with a Suffolk, Oxford or "Western" ram. This last breed is the same as the old horned sheep of Wiltshire, big, ugly, goat-like creatures with white faces, savage dispositions and a habit of casting all their wool in the summer before shearing time. They are highly valued for begetting fat lambs, and a flock book has recently been founded for the breed and classes for them have been provided at the Royal Show.

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[1] The Oxford Down breed was originally formed by crossing Cotswold with Hampshire Down sheep about 1830.

A great number of sheep are bought in the autumn as store tegs, wintered and sold out fat in the following spring or summer; this saves the risk of losses at lambing time and tegs do not take nearly so much out of the land as do ewes with lambs. Thus there is more of the sweet herbage left for cattle where there is no breeding flock kept.

Weights of Sheep.—All farmers were able to give satisfactory figures for the weights of fat sheep, but an obstacle was met in attempting to discover the gain in weight of sheep bought as stores and sold fat; for the money value and not the weight of store sheep is the only thing considered. Where they appeared trustworthy individual men's estimates were recorded; in other cases they were checked against the figures of one or two of the most methodical graziers, who said that tegs bought in lean condition in autumn should gain 24–32 lb. dead weight, *i.e.* 3–4 stone, before being sold out fat.

Ewes brought from some poor mountain area of Wales or Scotland must improve in condition considerably on being brought to excellent Midland pastures before they are sold out fat. 1,009 Kerry Hill ewes brought from the Hill to good Severn valley pastures showed an increase on the average of 17 lb. dead weight per head,[1] so this figure was adopted on the Midland farms, where the ewe stock was changed every year and the same conditions obtained as when bringing ewes from the Hills to the Severn valley.

B. CATTLE.—The part played by cattle in the husbandry of the three districts is briefly represented in Table 5.

TABLE 5.—*Cattle Classification.*

Locality	Milch Cows	Bulls	Calves		Other Young Cattle	Feeding Cattle Bought		Total Cattle	Total Cattle in Sheep Equivalents per 100 Acres
			Home Bred	Bought to Rear		Spring	Autumn		
Cotswold	376	17	374	658	1,347	1,0	84	3,856	58·8
Rugby	747	35	881	65	633	6,038	2,188	10,587	245
Harborough	4	—	4	—	—	1,608	192	1,808	267

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[1] These figures were obtained by J. Pryce Howell for a survey made

The column headed "home bred calves" shows 881 calves against 747 cows for the Rugby district; this difference is due to the fact that a number of heifers bought as barreners to fatten turn out to be in-calf. They are usually fattened out after rearing the calf and so cannot properly be classed as milch cows, although their progeny must be included under the heading of calves bred on the farms.

Full-grown store cattle are bought on to the arable farms at all times of the year, but principally in the autumn, so they are not divided into spring and autumn bought beasts. This distinction is, however, important on the grass farms, as the autumn bought cattle are wintered and sold fat after being on the farm for nearly a year, whereas the spring bought beasts are not on the farm for more than six months at longest.

Cattle Management.

A. *Cotswolds.*—Rearing calves, which are subsequently sold as stores at various ages, is the characteristic feature of Cotswold management, though a certain number are always fattened in yards. The district is not well adapted to milk production owing to the lack of good grass land, except on the borders of the area and in the river valleys where other geological formations than the oolite are met with. Rather inferior shorthorns typify the cattle stocks in the Oxfordshire district.

B. *Grazing Districts.*—Like the sheep the dairy cattle of the Rugby farms are largely a shifting population, very few good milk recorded herds being kept. In most cases cows and heifers of all breeds and descriptions are bought in the open markets, or those heifers are retained for milking which prove in-calf after being bought to fatten. The dairy cows kept are thus rather weedy and unsatisfactory, being largely the culls from the beef industry. Inferior bulls are kept as the farmer's own, young stock are generally sold out and not retained to replenish the herds.

According to the capacities of each farm and the individual preference of each farmer there is considerable variation in the breeds of cattle bought in to fatten on the grazing farms. Where first quality beef is the objective, Herefords, North Devons and a few Aberdeen-Angus and Galloway crosses prevail. On the very "strong" rich land great South Devons, Welsh "Runts," Shorthorns, both Irish and English, and Lincoln Reds are most popular. In the Welland valley only the choicest bullocks, three-year-old or even older if possible, are fed. In 1922 large numbers of the Canadian cattle were being fed in this district, but they did not give satisfaction.

Only sufficient cattle are bought in autumn, or kept over from the summer, to eat down the rough grass left after the end of the summer season: these are given a little hay and cake in hard seasons, but are generally turned out in rather rough, although healthy, condition in spring.

The Midland grazier is always at the mercy of the store cattle market, and until there is closer co-operation between the breeder and the grazier this uncertainty is likely to continue and upset all calculations. Even in pre-war days cattle were usually bought at 2*s.* to 5*s.* per live cwt. dearer as stores than they subsequently fetched as fat beasts, as there is always a glut of beef in the autumn when the grass is failing and a great number of cattle are ready for the butcher at the same moment. This difficulty is partly overcome by the large graziers who send their cattle to the great arable districts of Lincolnshire and Norfolk to be wintered free of charge, apart from an obligation on the part of the grazier to provide each beast with about 6 lb. of cake per day. Then in the spring these cattle are brought back in excellent condition to be finished on the grass. It would be out of place here to elaborate on the vagaries of the trade for store cattle, although some mention of this problem is indispensable for a proper appreciation of the grazier's business.

Table 6 shows the relative importance of dairying in the two districts. Milking cattle are of negligible importance in the Welland valley.

TABLE 6.—*Comparative Intensity of Dairying.*

	Milk sold in Gallons per 100 acres	Butter sold in Lbs. per 100 acres
Cotswold District	544	59
Rugby District	1,549	125

Weights of Cattle.—Great difficulty was experienced in obtaining information concerning the gain of weight of grazing cattle, information absolutely essential in carrying out this economic survey. Fat cattle are now sold by weight in most Midland markets, but they are not often weighed when bought in as stores, except when coming from Shrewsbury. The graziers are only interested in the increase (or sometimes the decrease in such a bad year as 1921) in money value shown by their beasts, and do not worry about how many pounds of beef may have been produced to feed the nation.

In some instances the grading and weighing of cattle during the war enabled farmers to give a reasonable estimate of what their cattle would gain, and these estimates were checked against figures given by various authorities as follows:—

1. Mr. Alfred Mansell, of Shrewsbury, head of the famous firm of auctioneers of that name, who has had wide experience of weighing cattle, stated that: "Good bred cattle that are in nice thrifty condition when turned out mid-March will put on 2½–3 cwt. during the summer months if the land is good, or about the same on moderate land if assisted with cake."

2. Mr. Westley Richards, in a pamphlet written on "The Cattle Trade and Farmers' Accounts," in 1893, states that 240 beasts in the four grazing summers in 1889–1892 gained from the time of buying to the time of selling on the average 22·1 stones of market weight which equals just 2¾ cwt.

3. Weights given by Mr. C. B. Fisher, of Market Harborough, in the *Journal* of the Ministry of Agriculture for 1883, were slightly higher than this.

4. Cattle weighed as stores in Dublin and brought to a good farm in the upper Warwickshire Avon valley, where they were heavily caked, increased on an average 2 cwt. in three months in the summer of 1922. They were sold fat by weight in Rugby Market.

Using these data as a check to each farmer's judgment, it was found that 7,549 beasts in the Rugby district gained on an average 150 lb. dead weight or 2¼ cwt. live weight, while 1,800 beasts in the Welland valley gained 127 lb. dead weight, or 1 lb. under 2 cwt. live weight. This smaller gain in the latter instance is due to the fact that the cattle are bought in better condition, so that there is less scope for them to increase in weight, while they are also turned out in a shorter time than in the Rugby district.

In reducing live weight of cattle to dead weight the proportion of 14 : 8 was adopted, as this is the scale of live stone to dead stone used at Smithfield Market. It was not thought advisable to attempt any fine discrimination between killing percentages of beasts in various degrees of fatness, and Westley Richards states that at most the variations will not be more than 4 per cent. (Westley Richards: "A moderately well-fed animal will yield about 57 per cent., the better fed animals as much as 60 or 61 per cent.")

C. HORSES.—Cobs, ponies and hunters are classed together under the heading of "Light horses," as it is impossible to draw hard and fast lines between horses of these types, for the same animals are used for several purposes in many instances.

Horse Management.—Not many horses are bred in the Cotswolds, a common practice being to buy in two- or three-year-old colts, break them and sell them out when they are at their best, *i.e.* at five or six years old. Many farmers have given up breeding horses in the Rugby district, as with the present depressed markets colts do not pay for the trouble of rearing.

The number of horses kept is given in Table 7.

TABLE 7.—*Horse Classification.*

Locality	Heavy Horses			Light Horses, including Colts, Ponies and Hunters	Total Horses
	Working	Unbroken			
		Home Bred	Bought in		
Cotswold . . .	573	186	48	92	899
Rugby . . .	215	77	57	136	485
Harborough . .	9	—	—	5	14

Somewhat arbitrary figures had to be adopted in assessing the value of horses sold; good broken-in horses were assessed at £30, suckers at £7, and 2-year-olds at £15; as a loss was made on most colts bought young, broken in, and then sold in 1922, no increased value was put on these animals.

D. PIGS.—Table 8 shows the numbers of pigs of different classes kept in the three districts and the general method of disposing of the pigs; it may be taken that most pigs which are sold fat are bacon pigs weighing about 200 lb. dead weight, while those sold as stores generally leave the farms shortly after weaning, that is between eight and twelve weeks old.

TABLE 8.—*Pig Classification.*

Locality	Sows	Boars	Pigs reared	Pigs bought	Total Pigs	Total Pigs sold Fat	Total Pigs sold as Stores
Cotswold . .	278	23	4,356	983	5,640	2,554	2,785
Rugby . . .	42	2	701	180	922	353	528
Harborough . .	—	—	—	4	4	4	—

All farmers were prepared to give definite estimates of the weights of fat pigs; store pigs, however, presented more difficulties, as they are always sold "by hand" and not by weight. After consulting with several pork butchers it was decided to take four-fifths of the live weight of pigs as dead weight; this proportion may seem high, but it must be remembered that a large quantity of the complete animal, *i.e.* chitterlings, brawn, etc., is eaten from pigs which would be wasted in cattle and sheep. All sucking pigs sold were valued at 38*s.*, which is the mean average of the prices given in the Agricultural Statistics for 1922. Older store pigs were valued at 1*s.* per pound.

Pig Management.—There is little of interest about the management of pigs on grass farms; they are a very secondary consideration compared to sheep and cattle and are not given the attention which they deserve. A few pure Large Blacks are kept, but for the most part the type of animal is very variable, all sorts of mongrels.

On the Cotswold farms pigs assume a much more important place, especially on the smaller holdings, as shown in Table 9.

TABLE 9.—*Relation of Pig Farming to Size of Holding in the Cotswolds.*

Size Group	No. of Farms in Group	Pigs per 100 acres	Pigs represented in Sheep equivalents per 100 acres
Over 500 acres . . .	15	15	10
300–500 acres . . .	25	22	15
100–300 acres . . .	28	30	26
Under 100 acres . .	16	77	59

Pedigree pigs, principally Large Blacks, are becoming more popular rapidly, the open-air system of pig-keeping is being adopted by many progressive farmers in the Cotswolds; and in many instances the pig is looked upon with increasing favour as the most profitable farm animal at a time of deep depression.

E. POULTRY.—Very few of the farmers visited devote any special attention to poultry, so it was impossible to obtain any reliable estimate of produce from poultry; this would, however, play a negligible part in the whole output of the farms. The numbers of poultry kept are given in Table 10.

TABLE 10.—*Poultry Classification.*

Locality	Total Number of Poultry	Number of Poultry per 100 acres
Cotswold	11,079	46
Rugby	5,288	23
Harborough	85	3

It will be seen that twice as many poultry are kept per 100 acres on the arable as on the grass farms, on account of the quantity of tail corn, etc., available for feeding fowls cheaply where there is much ploughed land.

SECTION III.

EXPENDITURE.[1]

I. MANUAL LABOUR.

After the farming practice of the three districts has been briefly discussed, the main items of expenditure incurred will be dealt with; there is no need to deal further with rent and rates, which are treated in a later section, so the most interesting question of all, namely labour, will next be reviewed.

The following table is drawn up to afford a measure of the employment given, and the efficiency of labour on the three groups.

TABLE 11.—*Summary of Labour Distribution, Cost and Efficiency.*

Locality	Hired labour	Family labour	Total labour	Acres per man	Total Wages	Wages per acre			Total Sales	Sales per man		
					£	£	s.	d.	£	£	s.	d.
Cotswold .	555	41	596	40	47,746	2	0	0	161,026	270	18	6
Rugby . .	195	59	254	73	18,400	0	19	8	121,480	477	18	0
Harborough .	20	2	22	100	1,893	0	16	11	15,337	686	14	0

The labour of farmers and their household is all classed as "family labour." It was in some cases hard to decide with how much manual labour a farmer should be credited, but on all farms over 500 acres it was taken that the farmer's time was wholly occupied with management. Only in exceptional cases were farmers managing 300–500 acres credited with any manual labour; under this size the impression made by the man in conversation was thought to be the safest guide to the amount of manual labour which he performed.

The number of men regularly employed could be ascertained definitely, but it was sometimes hard to find exactly how much casual labour was employed on a farm. Casual labour was in all cases converted to terms of men per year or per months in the year. A boy or lad is in all cases counted as half a man.

In the wages columns all family labour is excluded, as remuneration for management as well as manual labour must be provided for in the case of farmers and their sons. The following scale of wages was adopted:—

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[1] Complete details of expenses could not be obtained, but figures given here will be found to include the main items.

	Cotswold District *s. d.*	Grass District *s. d.*
Carters and skilled stockmen, per week	37 6	40 0
Other workers, per week	30 0	32 6

The method of arriving at the output, or value of all sales off the farms in terms of both money and calories, is explained later. The deductions from these figures of output in money values per man employed (including family labour) are important, as they provide some justification for the huge acreage of grass land now existing in this country. It is evident that the services of every farm labourer in the Rugby district are represented by 80 per cent. more in money value to the community of edible commodities than are the services of a similar man in the Cotswold district. The increase in value of output per man on the first-rate bullock fattening land of Market Harborough is represented by 153 per cent. over that on the Cotswold farms.

When production is measured by the calorie standard, the services of each labourer to the community are less valuable on the grass than on the arable farms, since the comparative production per man as measured in caloric values of foodstuffs is represented by these proportions:—

Rugby	1,000
Harborough	1,578
Cotswolds	1,727

On the other hand, if the criterion of a farming system is the bulk of employment afforded, it will at once be seen that the grass farms take a very secondary place compared even to such a poor arable district as the Cotswolds. For the number of acres worked by one man proves to be nearly twice as large in the Rugby district and just two and a half times as large in the Harborough district. The difference between the two grass areas is due to the fact that the average size of the Welland valley farms visited was much larger than the average size of the Rugby farms, *i.e.* 372 acres compared to 228 acres, also the number of milk-producing farms in the Rugby district was considerable, whereas all the Harborough farms were devoted to pure grazing.

At the time of writing (August 1923) the minimum wage for Northamptonshire was 28*s.*, but many "shepherds" and other men in responsible positions were paid 30*s.* or more, as compared to the 25*s.* minimum in Oxfordshire, with allowances, such as a right to keep a cow, in the grass districts in addition. Thus, the position of individual men was much better than in Oxfordshire, though fewer men were employed, and this consideration deserves great emphasis when the labourer's position is being considered, as there is much to be said for having a few well-paid men rather than a greater number who are not receiving a "living wage."

Conditions of Labour.—The object of the surveys was to collect all the information available from as many farmers as possible, so it was unfortunately impossible, in the time available, to make any detailed study of the fortunes of the farm labourers themselves; but a few observations on this aspect of the problem are essential to the proper treatment of the subject.

For a great number of years the wages of farm labourers in Oxfordshire have been amongst the lowest of any county in England, as there are no large manufacturing centres to compete for the services of labourers and so raise the general level of wages. As a natural consequence the Oxfordshire man is said to be less efficient, compared, say, to the Northumbrian, as he has suffered from long periods of under payment and underfeeding. In Oxfordshire there is little scope for improvement in the labourer's lot, as witnessed by the large number of relatively unskilled day labourers in the Cotswold district, men who have little responsibility or call for initiative and enterprise in their daily work. This state of affairs is much emphasised by Scotchmen who have migrated south and complain of the short and often listless day's work which they are able to obtain from the natives of Oxfordshire.

The position of labour in the Northamptonshire district is somewhat different, as there are here the great railways, the boot industries of Northampton and the British Thomson Houston works of Rugby, etc., to draw away the keener men and so force up wages. Housing is a difficult problem, as farmers find that the cottages in their villages are often occupied by men who travel in every day by bicycle or train to the big industrial centres and so keep out the rightful possessors of these cottages.

Great calls are made on the intelligence and loyalty of the "shepherds" or stockmen on large and scattered grass farms, which the owner may not visit more frequently than once a week. In many instances the greatest confidence is placed in these men by their employers; they are real artists capable of doing any job that comes to hand, and so interested in the livestock under their control that they are prepared to be with them at all hours of the day and night.

It may not be out of place to mention that in all the three districts under review a great improvement has been made in the amenities of the farm labourer's life by the establishment of motor-bus services through villages which were previously isolated and inaccessible. These buses have been of special value to the labourer's wives, who have been given an easy and cheap way of travelling to their market towns to do shopping and to obtain a little social intercourse with their neighbours.

II. HORSE LABOUR.

TABLE 12.—*Distribution of Horse Labour.*

Locality	Total Heavy Work Horses	Total Acreage	Acres per Horse
Cotswold	573	23,857	41
Rugby	215	18,710	87
Harborough . . .	9	2,233	247

This table shows that on the Rugby grass farms each horse works rather more than twice as many acres as on the Cotswold arable farms. This difference would be even more marked, but a certain number of horses must be maintained on the grass farms for the busy hay-making season, although there is, in most cases, little work for them to do in the winter. On the arable farms, however, work is found for the horses throughout the whole year, so that the fullest possible use is made of them.

Tractors.—The motor tractor is a supplement to horse labour. On the Cotswold farms thirty-six tractors were kept, which works out at nearly a tractor to every two farms, whereas only one tractor was used on the grass farms. In general, tractors do not enable a farmer to reduce the number of working horses, but they are found to be very useful for stationary work such as threshing, and for hurrying on such work as stubble ploughing at busy seasons of the year. Their popularity depends largely on the skill of the tractor-man: where he is a good mechanic, repair bills are not a heavy item; but when outside assistance has to be paid for when any small breakage occurs, the tractor ceases to be an economic factor in production.

III. FERTILISERS.

TABLE 13.—*The Use of Fertilisers.*

Locality	Total Fertilisers bought in tons	Fertilisers in tons per 100 acres	Total cost Fertilisers	Cost Fertilisers per 100 acres
			£	£ *s.* *d.*
Cotswold . .	1,086	4·54	6,656	27 17 10
Rugby . . .	519	2·72	2,020	10 16 0
Harborough .	58	1·89	181	8 2 4

The prices of fertilisers were taken from Part III of the Agricultural Statistics, 1922; in all cases the average quality of fertiliser was taken as a basis from which to work out the total cost. An approximate figure only could be used for "Compound Manures," namely £9 10*s*. per ton, which was the figure recommended as being most representative by various manure merchants in the districts visited. As would be expected, the consumption of manures is much higher, roughly twice as large, in the arable than in the grass districts.

More than half of the manures used on the arable farms consisted of superphosphate, while basic slag and sulphate of ammonia were also used in fairly large quantities. It is probable that the thin limestone soil of the Cotswolds would respond well to the freer use of potassic manures, but there is a deep-rooted opinion that phosphatic manures alone are what are required on this soil.

As much as 86 per cent. by weight of the fertilisers used in the Rugby district was basic slag, which in most cases produces excellent results, largely increasing the proportion of wild white clover in the turf to which it is applied. It is probable that on many grazing farms the use of more fertilisers, judiciously chosen to suit the land, and less cake would produce better effect at less cost, by improving the quality of turf and thereby increasing its fattening properties.

IV. FEEDING STUFFS.

The total quantities and cost of feeding stuffs used are given in Table 14, where the number of all livestock in sheep equivalents per 100 acres is also recorded. This shows that on different types of farms there is no constant relation between the numbers of livestock kept and the quantity of feeding stuffs used. It should be remembered, however, that most of the stock in the grass districts is only on the land during summer, so it naturally requires relatively less purchased foods than does a smaller head of stock in the arable area, where as many or more beasts are maintained in winter than in summer.

TABLE 14.—*The Use of Feeding Stuffs.*

Locality	Total Concentrated Foods, tons	Concentrated Foods per 100 acres, tons	Total Cost Foods	Cost Foods per 100 acres	Livestock in Sheep equivalents per 100 acres
			£	£ s. d.	
Cotswold .	1,609	6·75	17,060	71 10 0	146
Rugby . .	1,729	9·24	19,720	105 8 0	326
Harborough .	49	2·21	475	21 5 0	350

Wheat offals are the largest single item of food-stuffs purchased in the Cotswold district, showing the important part taken by pigs in this district. 88 per cent. of the concentrated food-stuffs used in the Rugby district consists of cotton, compound and linseed cake. Compound cakes were all valued at £12 per ton, which represents the average price of "feeding" and "dairy" cakes in 1922.

In an arable district it would be very unusual to find farmers purchasing roots, apart from sheep "keep" standing in the field; but in the Rugby area the smaller dairy farmers make a regular practice of buying roots, in small quantities at a time, from neighbouring allotment holders, railwaymen and others. Thus they are saved the trouble of cultivating a very few acres of arable land in order to obtain some winter keep.

SECTION IV.

CAPITAL.

To obtain a full measure of the relative efficiency of grass and arable farming it would be necessary to procure estimates of the capital required under both conditions as well as of the production itself and expenditure on labour, fertilisers, manures, etc. At the start of the survey it was hoped that these estimates would be obtainable, but it was soon found that many farmers had no regular valuation made, while others were naturally shy of entrusting their figures to a stranger. Thus the evidence on capitalisation is somewhat scanty, except with regard to implements, of which a list was taken from every farm visited and a reasonable second-hand value was subsequently applied to the various implements, with the results shown in Table 15.

TABLE 15.—*Implement Equipment.*

Locality	Total Valuation of Implements	Valuation of Implements per acre
	£	£ s. d.
Cotswold	47,294	1 19 9
Rugby	15,697	0 16 9
Harborough	745	0 6 8

The above figures may appear to be rather low, but it must be remembered that they do not in any way represent the cost of equipping a farm with new implements, but simply the real market value of the implements in fair second-hand condition.

Cotswold District.—The value of implements on arable farms of different sizes is shown in Table 16; the cost per acre rises regularly as the farms grow smaller, as would be expected.

TABLE 16.—*Relation of Size of Arable Farms to Implement Equipment.*

Size Group	Number of Farms	Implement Valuation per acre
		£ s. d.
Over 500 acres	15	1 10 5
300–500 acres	25	2 2 5
100–300 acres	28	2 7 4
Under 100 acres	16	3 0 2

Figures are available for the total valuation on nine arable farms comprising 3,891 acres, or roughly one-sixth of the whole arable district: the average size of these farms is thus 432 acres and the figures are representative of the larger arable farms. On the smaller farms more capital is required per acre for efficient working:—

	Acreage	Livestock Valuation	Tenant Right Valuation
Total	3,891	£16,425	£11,390
Per acre	—	£4 4*s.* 5*d.*	£3 1*s.*

Tenant right includes tillages, unexhausted manurial values, hay and straw, etc., in fact all items not included under the heading of livestock or implements.

Rugby District.—There are not enough actual valuations available to make valuation tables for the grass farms satisfactory or reliable, but figures supplied by a local auctioneer and valuer with a large practice show roughly the money required to equip a grass farm. "Tenant right"—that is, unexhausted manurial values and hay, etc.—will not amount to more than 10*s.* to 15*s.* per acre as compared to £3 1*s.* on the Cotswold farms, since there are few or no tillage operations to be paid for. The money required to equip a grazing farm with livestock depends entirely on the quality of its grass and the price of store cattle, but at present at least £10 per acre is needed on a farm where there is a certain amount of store land; this will be increased to £15 per acre where any considerable part of the land is capable of fattening a beast to the acre. Thus with implements at 16*s.* 9*d.* per acre, at least £11 10*s.* is needed to equip a grass farm efficiently.

On the *Market Harborough* farms approximately £20 per acre is invested in livestock.

SECTION V.

SUMMARY OF PRODUCTION.

Some common measure to which all farm produce could be reduced had to be found in order to compare finally the value to the nation of the two farming systems under review. With this object in view production has been summarised under two headings, as neither of these is quite satisfactory by itself, although when taken together they afford as good a simple gauge of productivity as can be obtained.

In times of scarcity or famine, such as the Great War, physiologists use the calorie as the basis on which to found rations. Although no one wishes to be guided solely by calories in choosing his diet in time of plenty, they do give the only basis to show what food-stuffs will provide the necessary energy to keep men alive and enable them to work with a fair measure of efficiency and the minimum of cost. But the farmer is never likely to be guided by a scale of calories in deciding what policy to adopt, and what crops or stock it will best pay him to produce. To him money values are more important, and in the end the price which is paid for any sort of food represents what the community thinks that particular food is worth. This would not be true in the case of what may be termed "luxury products," such as peaches or asparagus; but as the produce of the Rugby and Cotswold districts consists only of the staple factors of diet, such as meat, milk and cereals, this question of luxury products need not prove a serious difficulty. Accordingly production has been summarised in the two forms of calories and money values, in the hope that together they would prove satisfactory both to the scientist and to "the man in the street," or rather "the man in the field."

I. CALORIE VALUES.

The figures comprising the table of calorie values represent the final produce sold off the farms; and so they are all in a form in which they can be eaten by man. Wool, hay and horses cannot be classed with food-stuffs. They, however, do not play an important part in the sales off the farms visited, and so may be excluded from the calorie tables without seriously impairing their value.

Great difficulty was experienced in deciding upon a suitable scale for converting foods into calories, as most of the investigations into the caloric value of foods, notably those of Atwater and Bryant for the U.S.A. Department of Agriculture, give the value of certain special articles of diet only. Thus it is comparatively easy to decide on the Energy Value of beef-steak or mutton-chop, but it is much harder to say what values can fairly be applied to the complete carcass of beef and mutton. Much enlightenment was gained from Sir Thomas Middleton's *Food Production in War*, and the author of this book very kindly gave his valuable assistance in drawing up a complete conversion table for all the principal foods produced in the Cotswold and Rugby districts. These figures are worked out from the average composition of the various foods, using Atwater's factors which have been generally recognised for a number of years, namely :—

Protein and Carbohydrates = 1,860 calories per lb.
Fat = 4,200 ,, ,,

Guided by these figures, a scale for vegetable and dairy products was definitely adopted and runs as follows :—

Wheat	grain	whole	contains	1,600	calories	per lb.
Barley	,,	,,	,,	1,480	,,	,,
Oats	,,	,,	,,	1,470	,,	,,
Beans	,,	,,	,,	1,420	,,	,,
Potatoes	,,	,,	,,	390	,,	,,
Milk	,,	,,	,,	325	,,	,,
Butter	,,	,,	,,	3,600	,,	,,

The composition of different carcasses of meat varies enormously according to the exact degree of fatness of the animal when slaughtered, its age, etc., etc., so that the figures adopted for meat are bound to be somewhat arbitrary, and in every case what appears to be an average figure for the different classes of meat is the only reliable figure that can be adopted. Thus it is best to explain the conversion figures taken for meat in some detail.

1. *Fat Mutton.*—Plimmer's *Analyses and Energy Values of Food* (Stationery Office, 1921) gives the whole carcass of fat New Zealand Sheep at 1,800 calories (the figures are per lb. in all cases). In his own estimates Sir Thomas Middleton averages mutton at 1,500 calories, but states that well-fattened sheep might run to 1,650 calories. Thus it was thought best to adopt 1,650 as the conversion figure for fat mutton.

2. *Fat Beef.*—Atwater's figure for "Medium Side of Beef" is 1,250 calories, and Sir Thomas Middleton says that the fattening increase of beef off the finest pastures rises to 2,000 calories per lb., while the fattening increase on land "between the finest feeding pasture and ordinary store land, that is second quality feeding pasture, may be allowed for at 1,500 calories." Accordingly the figure 1,500 was adopted for the Cotswold and Rugby farms, where the land is rather mixed; while 2,000 was taken for the Market Harborough farms, where the pasture is all of first quality and all cattle are sold in very prime fat condition.

TABLE 17.—*Total Production and its Calorie Value.*

		Cotswold, Arable Farms 23,857 acres			Rugby, Grass Farms, 18,710 acres			Harborough, Grass Farms, 2,233 acres		
Product	Calorie Factor per lb.	Total Sales	Sales in lbs. per acre	Calories per acre	Total Sales	Sales in lbs. per acre	Calories per acre	Total Sales	Sales in lbs. per acre	Calories per acre
Wheat	1,600	11,415 qrs.	237·20	379,500	864 qrs.	22·91	36,650	101 qrs.	22·41	35,890
Barley	1,480	6,563 ,,	121·00	179,100	150 ,,	3·53	5,233	—	—	—
Oats	1,470	2,257 ,,	30·47	44,780	50 ,,	·86	1,262	—	—	—
Beans	1,420	116 ,,	2·50	3,562	37 ,,	2·18	2,892	—	—	—
Potatoes	390	1,609 tons	190·10	74,150	29 tons	3·47	1,354	—	—	—
Milk	325	129,698 galls.	54·37	17,670	289,918 galls.	155·00	5,037	600 galls.	2·69	873
Butter	3,600	14,051 lbs.	·59	2,120	22,392 lbs.	1·20	4,309	—	—	—
Fat, Mutton	1,650	507,446 ,,	21·26	35,090	443,199 ,,	23·58	38,900	62,476 lbs.	27·99	46,170
,, Beef	1,500	241,723 ,,	10·13	15,176	1,228,974 ,,	65·69	98,528	*228,480 ,,	102·30	204,600
,, Bacon	2,500	457,530 ,,	18·74	47,930	42,591 ,,	2·28	5,692	760 ,,	·34	850
All Store Meat	1,000	410,427 ,,	17·20	17,200	131,569 ,,	7·03	7,034	3,700 ,,	1·66	1,658
Veal	1,000	3,567 ,,	·15	149	40,869 ,,	2·18	2,185	—	—	—
Total Production of calories per acre				816,427			254,409			290,041
Number of days during which the produce of one acre would feed one man				290			92			106

Miscellaneous Sales	Cotswold Farms	Rugby Farms	Harborough Farms
Hay	419 tons	—	—
Clover Seed	5½ ,,	—	—
Horses bred on the farms	42	65	—
Wool: total sales	45,750 lbs.	44,676 lbs.	17,328 lbs.
,, sales in lbs. per acre	1·91 lbs.	2·39 lbs.	7·76 lbs.

* The "Calorie Factor" for Harborough fat beef is taken as 2,000 per pound.

3. *Fat Bacon* is valued at 2,500 calories per lb. As nearly all the fat pig meat sold off the farms under review went as bacon and very little as pork, it was thought that 2,500 might be adopted for all fat pig meat without introducing any appreciable error.

4. *Store Meat.*—Sir Thomas Middleton recommends that "The increase of a growing store animal on a moderate pasture is not likely to exceed 800–1,000 calories per lb., and 1,000 may be taken for calculation." Accordingly 1,000 calories per lb. was used for all store meat whether from cattle, sheep or pigs. *Veal* was also valued at 1,000 calories per lb., as many calves are slaughtered in rather lean condition, when only a few days old.

Where animals are moved from one farm to another at different stages of their life a further element of difficulty is introduced: it is hard to determine the value of the "fattening increase" as the animal grows. With this difficulty in view only the broadest divisions between store and fat meat have been recognised, as it was thought that any attempt to adopt a more delicate and intricate scale of values would only lead to further error. Again it is perhaps rather misleading to assign a calorie value to lean meat, as no farmer would think of killing and no consumer would think of eating really lean store meat.

But if these difficulties and sources of error are frankly recognised it is thought that the tables of production in calories will be of interest and value.

Table 17 gives the production converted to calories of the three districts. It will be noted that corn and meat are both well represented in the Cotswold district, while the Rugby farms produce principally meat, with a good deal of milk and a certain amount of wheat. Thus the true dietary value of the food from the Rugby farms is greater than appears from the Energy Values, as it contains a much larger proportion of digestible proteins and fat.

Assuming that every person in the United Kingdom requires 2,755 [1] calories per day, it is seen that an acre of the Cotswold land will feed one person for 290 days, an acre of Rugby land for 92 days, and an acre of Harborough land for 106 days, if the question is regarded solely from the "Energy Value" point of view.

II. MONEY VALUES.

With a view to converting all produce into terms of calories and money, in visiting the farms everything was recorded in pounds avoirdupois; this introduced certain difficulties, as it was a method of reckoning strange to the minds of most farmers. But it was the only method of obtaining strictly comparable results. Thus in turning the original tables into money values, it was only necessary to find out and apply the average prices per lb. of different classes of meat, wool, etc. The objection may at once be raised that this system makes it impossible to differentiate between good and bad qualities of produce. For if one price is applied, say to all fat mutton in a district, no credit is given to those men who always aim at producing first-class sheep as opposed to those who are content with inferior sheep. But it is only fair to assume that the number of good and bad farmers will balance one another pretty evenly, and that, where as many as eighty farms are being considered together, inaccuracies resulting from variations in quality will not be at all serious. In any case the value of the tables is relative rather than absolute.

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[1] *Food Production in War*, page 51.

In dealing with livestock which were bought on to a farm and sold out later on, the gain in weight during the period on the farm was the only thing considered. This system may be objected to in the case of graziers; for instance, the relative price per cwt. of store and fat cattle is one of the most important factors in deciding whether feeding cattle will pay or not, and graziers may say that the money figures given here are valueless as they do not take into account the price paid for stores. But there seemed to be no way of avoiding this difficulty, for not all farmers will reveal the money actually paid for all purchased stock and the money received for the same stock when sold. On the other hand, it was comparatively simple to find out how many cattle were turned out off a farm annually, and take it that each beast gained a certain weight in the season on the average, thereby arriving at an estimate of the total weight of beef produced. Then the value to the community of this meat is simply arrived at by applying the average price of beef throughout the year.

All prices are taken from Part III of the Agricultural Statistics for 1922. Prices of crop products call for very little remark; they are higher in some cases than the prices actually realised for the 1922 harvest, but they represent values during the whole calendar year, and as it was a period of rapid fall in values it may at first appear that the general level is somewhat higher than it should be. An exception was made in the case of potatoes, for which prices for the months September–December 1922 were taken as representing the value of the 1922 harvest. This gave 75*s.* 6*d.* per ton compared to 141*s.* for the whole calendar year, taking an average of first and second quality King Edwards and Arran Chiefs. It was thought fairest to take a figure half-way between first and second quality quotations for all fat meat, and as the breed of animal kept varied so much from farm to farm the average price for all breeds was used in every case. It was

Table 18.—*Analysis of Cash*

ARABLE FARMS

Description of Product	Unit Price	I. Over 500 Acres	
		Quantity Sold	Value
			£
Wheat	47/10 per qr.	4,033 qrs.	9,645
Barley	40/1 „	1,781 „	3,570
Oats	29/1 „	1,153 „	1,648
Beans	53/– „	33 „	87
Potatoes	75/6 per ton	606 tons	2,287
Hay	143/– „	237 „	1,694
Clover Seed	120/– per cwt.	—	—
Fat Lamb	1/4½ per lb.	—	—
Fat Mutton	1/3¾ „	157,152 lbs.	10,162
Fat Ewes	1/2¾ „	29,600 „	1,814
Store Sheep	1/2 „	10,820 „	631
Wool (Unwashed)	1/1 „	20,000 „	1,083
Prime Beef	10½*d.* „	83,306 „	3,644
Cow Beef	7*d.* „	4,023 „	201
Store Cattle	1/– „	89,520 „	4,476
Veal	1/– „	555 „	23
Fat Pigs	1/– „	123,880 „	6,194
Store Pigs, 12 weeks old	38/– head	502 pigs	954
Milk	1/3½ per gall.	20,225 galls.	1,307
Butter	1/8 „ lb.	888 lbs.	74
Horses	£30 heavy 5 y.o.		180
Total Sales			£49,674
Total Acreage			8,985
Sales per Acre			£5/11/1

RUGBY GRASS FARMS

Description of Product	Unit Price	I. Over 500 Acres, Meat		IIa. 300–500 Acres, Meat		IIb. 300–500 Acres, Milk	
		Quantity Sold	Value	Quantity Sold	Value	Quantity Sold	Value
			£		£		£
Wheat	47/10 per qr.	201 qrs.	502	238 qrs.	570	—	—
Barley	40/1 „	36 „	72	40 „	80	—	—
Oats	29/1 „	—	—	—	—	—	—
Beans	53/– „	—	—	—	—	—	—
Potatoes	75/6 per ton	—	—	—	—	—	—
Hay	143/– „	—	—	—	—	—	—
Clover Seed	120/– per cwt	—	—	—	—	—	—
Fat Lamb	1/4½ per lb.	29,080 lbs.	1,958	36,622 lbs.	2,489	13,455 lbs.	925
Fat Mutton	1/3¾ „	81,780 „	5,377	46,170 „	3,030	3,600 „	236
Fat Ewes	1/2¾ „	—	—	—	—	—	—
Store Sheep	1/2 „	—	—	—	—	—	—
Wool (Unwashed)	1/1 „	11,520* „	485	10,035 „	418	1,680 „	70
Prime Beef	10½*d.* „	445,760 „	19,504	304,128 „	13,305	22,712 „	1,026
Cow Beef	7*d.* „	—	—	—	—	11,200 „	350
Store Cattle	1/– „	4,664 „	233	—	—	1,400 „	70
Veal	1/– „	14,831 „	742	1,285 „	64	1,570 „	78
Fat Pigs	1/– „	1,500 „	76	1,361 „	518	—	—
Store Pigs, 12 weeks old	38/– head	8 pigs	15	217 pigs	412	—	—
Milk	1/3½ per gall.	3,555 galls.	229	2,965 galls.	192	30,295 galls.	1,956
Butter	1/8 per lb.	260 lbs.	23	364 lbs.	31	520 lbs.	44
Horses	£30 heavy 5 y.o.		305		49		60
Total Sales			£29,501		£21,176		£4,815
Total Acreage			5,097		3,900		717
Sales per Acre			£5/15/9		£5/9/1		£6/14/4

* Note.—Wool off the grass farms—mostly

Receipts on all Farms.

ARABLE FARMS—*contd.*

II. 300-500 Acres		III. 100-300 Acres		IV. Under 100 Acres	
Quantity Sold	Value	Quantity Sold	Value	Quantity Sold	Value
	£		£		£
4,260 qrs.	10,210	2,501 qrs.	5,070	612 qrs.	1,461
2,789 ,,	5,590	1,671 ,,	3,349	322 ,,	646
742 ,,	1,079	352 ,,	511	10 ,,	24
26½ ,,	70	53½ ,,	142	3 ,,	8
230 tons	860	688 tons	2,597	85 tons	316
122 ,,	786	48 ,,	343	12 ,,	86
40 cwt.	240	60 cwt.	360	10 cwt.	60
28,400 lbs.	1,953	12,432 lbs.	854	—	—
166,554 ,,	10,926	51,902 ,,	3,418	5,460 lbs.	359
40,580 ,,	2,994	13,312 ,,	818	1,560 ,,	96
8,552 ,,	499	2,240 ,,	131	—	—
17,983 ,,	979	5,402 ,,	292	365 ,,	20
99,038 ,,	4,332	30,516 ,,	1,335	10,228 ,,	444
9.121 ,,	346	6,628 ,,	244	2,520 ,,	81
111,240 ,,	5,502	88,294 ,,	4,419	13,715 ,,	686
765 ,,	38	1,887 ,,	99	860 ,,	18
105,100 ,,	4,938	155,470 ,,	7,775	73,080 ,,	3,654
1,342 pigs	2,800	615 pigs	1,510	326 pigs	620
53,887 galls.	3,480	42,621 galls.	2,817	11,965 galls.	773
8,134 lbs.	262	7,474 lbs.	654	2,562 lbs.	213
	600		280		30
	£58,643		£37,913		£9,595
	8,789		5,078		1,005
	£6/13/5		£7/9/4		£9/11/11

RUGBY GRASS FARMS—*contd.* / MARKET HARBOROUGH GRASS FARMS

IIIa. 100-300 Acres, Meat		IIIb. 100-300 Acres, Milk		IVa. Under 100 Acres, Meat		IVb. Under 100 Acres, Milk		MARKET HARBOROUGH GRASS FARMS All Sizes	
Quantity Sold	Value	Quantity Sold	Value	Quantity Sold	Value	Quantity Sold	Value	Quantity Sold	Value
	£		£		£		£		£
134 qrs.	320	212 qrs.	507	—	—	70 qrs.	168	101 qrs.	241
63 ,,	123	—	—	—	—	11 ,,	22	—	—
50 ,,	73	—	—	—	—	—	—	—	—
23 ,,	152	—	—	—	—	—	—	—	—
—	—	—	—	—	—	6 tons	23	—	—
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
66,834 lbs.	4,586	50,260 lbs.	3,405	5,085 lbs.	345	11,825 lbs.	823	8,800 lbs.	605
33,528 ,,	2,200	23,102 ,,	2,200	5,120 ,,	336	2,100 ,,	138	53,676 ,,	3,523
1,540 ,,	97	4,770 ,,	293	—	—	—	—	—	—
—	—	6,780 ,,	305	—	—	1,200 ,,	90	3,520 ..	205
10,049 ,,	419	8,903 ,,	320	708 ,,	33	1,691 ,,	70	17,328 ,,	724
225,980 ,,	9,886	121,277 ,,	5,805	47,008 ,,	2,056	10,788 ,,	472	228,480 ,,	9,954
—	—	51,486 ,,	2,060	—	—	28,595 ,,	942	—	—
33,543 ,,	1,672	17,013 ,,	851	4,077 ,,	209	15,248 ,,	763	—	—
3,525 ,,	176	16,851 ,,	842	405 ,,	20	2,402 ,,	120	180 ,,	9
9,580 ,,	479	10,750 ,,	537	1,240 ,,	62	9,160 ,,	458	760 ,,	38
82 pigs	156	112 pigs	213	47 pigs	89	62 pigs	118	—	—
4,065 galls.	263	203,459 galls	13,142	2,544 galls.	177	43,035 galls.	2,621	600 galls.	38
5,332 lbs.	444	8,218 lbs.	685	520 lbs.	43	7,178 lbs.	648	—	—
	92		180		—		15		—
	£21,524	£	30,936		£3,365		£7,491	£	15,347
	3,850		3,837		441		868		2,233
£	5/11/10	£	8/1/3	£	7/12/7	£	8/12/7	£	6/17/4

"long wools"—was valued at 10½*d.* per lb.

impossible, as already shown, to draw fine distinctions between different qualities of meat; but cow beef and fat ewe mutton have been assessed at a lower figure than beef and mutton from younger animals, as this difference of classification is quite simple and reliable. All the weights recorded in the original tables for wool are for unwashed wool; in the Cotswolds the average price for the coarser Down wools was adopted, and in the grass districts the average price for the coarser long-wool breeds which prevail here.

In the Agricultural Statistics all quotations for store animals are per head and not per pound weight, but this method of valuing stock sold could not be applied in view of the way in which the tables had been prepared, as explained previously. To arrive at the price per lb. of store animals the average weight of stores of various classes and ages was taken and divided by the market price, and the results thus obtained appear to be quite satisfactory.

A detailed analysis of estimated cash receipts is given in Table 18.

III. COMPARISON OF CALORIES AND MONEY VALUES.

It is shown in Table 19 that there is no constant relation between the energy value and the money value of foods, as on the grass farms every calorie unit costs roughly three times as much as on the arable farms, since meat, a dear food on account of its high protein and fat content, is the staple product of the grass farms. This must not be taken in support of less intensive production and the laying back of land to grass, for it is fairly certain that if the Rugby district were largely arable it would produce food of a much higher calorie and money value than the Cotswold area does at present, owing to its superior natural fertility. The situation is simply put forward to illustrate the fact that a fairly rich district under grass will produce food-stuffs of nearly as great money value as will a poor arable district, although this food will not be of the same service in feeding the

TABLE 19.—*Production in Calories and Money Values.*

Locality	Calories per acre	Calories per acre taking Rugby farms as 1,000	Total Value, Sales per acre	Cost to Consumer of 1 million calories
			£ s. d.	£ s. d.
Cotswold . .	816,427	3,202	6 10 7	7 19 9
Rugby . . .	254,409	1,000	6 7 0	25 12 7
Harborough .	290,041	1,140	6 17 4	23 13 7

nation during a period of emergency as the mixed corn and meat of an arable district would be.

The larger number of calories per acre on the Harborough farms as compared to the Rugby farms is largely due to the higher value placed on the increase of fat beef from the Welland valley, *i.e.* 2,000 calories per lb. against 1,500 calories per lb. This is justified by the fact that all cattle in the Harborough district are sold in very fat condition, so the increase will be of the highest calorie value possible for fat beef.

The superiority of the Cotswold district in calorie production is not so marked if the question is regarded from the point of view of calories produced per man employed, as shown in Table 19A.

TABLE 19A. *Production of Calories per Man employed, taking Rugby District as* 1,000.

Cotswold District	1,727 cals.
Harborough ,,	1,578 ,,
Rugby ,,	1,000 ,,

This table shows that the efficiency of a labourer, from the point of view of producing food in time of emergency, is 72 per cent. higher in the Cotswold area and 57 per cent. higher in the Harborough area than it is in the Rugby area, which last is typical of much of the grass land in the Midlands.

SECTION VI.

ECONOMIC SIZE OF HOLDING.

It would be out of place to discuss at great length the merits and demerits of large and small holdings, but something must be said to illustrate how the style of farming is naturally adapted to the size of the farm in the Cotswold and Rugby districts respectively. It is only possible here to give the results of production, expenditure, etc., in condensed form in order to bring out the main points of comparison.

From Table 20 it is seen that the number of acres worked per man and per horse increases steadily as the farms grow larger, while the expenses per acre (rent and rates, labour, fertilisers and manures) decrease on the larger farms. As would be expected, production is higher, as represented by the money value of the sales per acre, as the farms grow smaller; the result of these two movements is that production per man is much the same for the three biggest size groups, though there is a distinct falling off in the small holdings group. It should be mentioned again that the expenses on farms under 100 acres appear low, as no charge

TABLE 20.—*Influence of Size of Holding on Expenditure and Production. Arable Farms.*

Size group	No. of farms	Average size	Acres per man	Acres per horse	Expenses per acre			Production per acre			Production per man	
		acres			£	s.	d.	£	s.	d.	£	s.
Over 500 acres	15	599	47	52	3	13	1	5	11	1	261	1
300–500 acres	25	352	41	41	4	3	10	6	13	5	266	17
100–300 acres	28	181	34	33	5	2	6	7	9	4	253	11
Under 100 acres	16	63	22	25	4	8	2	9	11	11	211	2
Average of .	84	281	40	41	£4	4	8	£6	10	7	£261	4

is made for family labour, which forms a large item though no money actually leaves the farms for it.

The natural size unit for farms of this type would appear to be just under 300 acres judging from the second column in Table 20, as this was the size most commonly met with. In most instances the largest farms included a good deal of inferior land, which may in part account for the larger acreage worked per man and per horse on these groups. But the fact remains that labour can be used more economically on large farms.

The same general principles are brought out in Table 21, which deals with the size groups of grass farms. Production per acre decreases, sales per man increase, and the number of acres worked per man increases as the farms grow larger. There is one notable exception to this, namely the group comprising six "meat" farms under 100 acres, where the sales per man employed are greater than in the next group of meat farms. This is because these six farms included four of superlatively good land,

TABLE 21.—*Influence of Size of Holding on Expenditure and Production. Grass Farms (Rugby).*

	Size Group	No. of farms	Average size	Acres per man	Acres per horse	Expenses per acre			Production per acre			Production per man	
						£	s.	d.	£	s.	d.	£	s.
Meat .	over 500	8	637	121	124	3	11	4	5	15	9	703	6
Meat .	300–500	11	354	93	125	4	5	4	5	9	1	507	5
Milk .	300–500	2	358	68	102	3	6	6	6	14	4	456	15
Meat .	100–300	19	202	73	78	3	14	11	5	11	10	416	14
Milk .	100–300	22	174	50	62	4	16	0	8	1	3	419	17
Milk .	under 100	14	62	35	37	5	4	4	8	12	7	302	13
Meat .	under 100	6	74	60	88	5	15	7	7	12	7	464	3
Averages	for	82	228	73	87	£4	2	8	£6	7	0	£477	14

and cake was used more heavily on these than on any other farm.

Comparison of Meat and Milk Farms.—In examining Table 21 the most interesting results are to be found by comparing meat with milk farms. It is clear that production is much more intensive on the latter, though generally their land is not good enough to be used for pure grazing. More labour is employed, but the value of the production per man employed is lower on the milking farms; they also appear to leave a much larger surplus from which a profit might be derived. This bears out the general opinion that milk production has been one of the most lucrative styles of farming during the last few years. The average size of the pure grazing farms was 302 acres, and of the dairying farms only 142 acres.

These figures show that as usual the less exacting sort of farming, namely pure grazing, gives the best return per man employed, but is of least service to the nation in providing food. This distinction between dairying and grazing farms is most important, as the sales per acre are £1 9*s*. 10*d*. larger on the milk grass farms and 16*s*. 11*d*. smaller on the meat grass farms than they are on the Cotswold farms.[1]

Exactly half of the Rugby grass farms visited range from 100–300 acres; many more small-holdings could have been surveyed, but it was thought that twenty were sufficient to give results comparable with those obtained from the other size groups. Where individual men occupy a large area of grass land, it is frequently scattered about in fairly small units over several parishes, and not concentrated in a ring fence as on most Cotswold arable farms; this made it more difficult and complicated to collect exact figures for grass farms which came under the large size group headings.

No reference is made in Table 21 to the Market Harborough farms, as the number visited in this district was not sufficient to warrant any subdivision into "size groups."

SECTION VII.

GENERAL CONCLUSIONS.

It may be said that the conclusions arrived at after making the two surveys described in this paper are inapplicable to general conditions, unless it is possible to argue from the particular to the general. For the grass land surveyed is naturally more fertile and valuable than the arable land, and so the surveys might be said to be unfair to the interests of tillage in general, since very different results would be obtained if some rich arable district, such as the Fens, had been studied. The difference in value is most simply illustrated by reference to the rent paid for the land.

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[1] See Table 22, page 245.

	Average rent per acre £ s. d.
Cotswold land	0 19 11
Rugby land	1 13 5
Harborough land	2 6 2

Thus, farmers are willing to pay 67 per cent. more for the Rugby land and 130 per cent. more for the Harborough land than they are for the Cotswold land. But under present economic conditions much land that is good enough to establish a fair turf in a few years will probably be laid back to grass, so it may be said that the Cotswolds are typical of what will remain of the arable land of England. In any case the object of the survey was not to supply materials for sweeping and possibly ill-founded statements applicable to the whole country, but rather to examine and elaborate detailed evidence from the two districts selected. If it be borne in mind throughout that the arable farmers start at a disadvantage, as they have inferior raw material to work with in the shape of their land, there is little to prejudice the comparison of the two areas as representing grass and arable farms respectively.

There is little or no other grass land in the whole of England better than that in the Welland valley and these farms were visited to obtain an estimate of the productivity of these superb pastures and compare it with results obtained in the Rugby district, where there is a good deal of inferior "store" land mixed with the better land. It is on this magnificent pasture land that farming assumes its simplest form; here only the last stage in preparing the finished product, namely fat cattle and sheep, is gone through; yet the money value of the produce per acre is slightly larger than on the Cotswold farms. Rent is the most important item of expenditure on the best grass farms and labour plays relatively a very unimportant part.

The principal statistical results of the surveys are summed up in Table 22.

The most interesting figures in this table are those contrasting grazing and dairying grass farms, for production per acre is much greater on the milk farms (measured in money values) though production per man is less. Thus where grass land is used for dairying rather than grazing it has advantages approximating to those of tillage farming in providing employment in

TABLE 22.—*Summary of Results.*

Type of Farm	No. in Group	Acres per man	Acres per horse	Production in 1,000 calories per acre	Production in money per acre			Production in money per man		Expenses per acre *		
					£	s.	d.	£	s.	£	s.	d.
Cotswold—Arable . .	84	40	41	816	6	10	7	261	4	4	4	8
Rugby—Grass—milk	38	50	61	342	7	19	5	394	18	4	13	8
Rugby—Grass—meat	44	91	106	221	5	13	8	520	4	3	18	2
Harborough—Meat . .	6	100	248	290	6	17	4	686	14	3	16	11

* This column includes rent and rates, labour, fertilisers and feeding stuffs only.

rural districts and producing a large bulk of food-stuffs. If the value of a farming system is, however, measured in calories, even the milking grass farms produce considerably less than half as much food as the Cotswold farms, while the meat farms produce only slightly over a quarter as much as the Cotswold farms.

Bearing these distinctions between dairying and grazing farms in mind, it must be remembered that the final conclusions on the last page are for the grass district as a whole, and taking all the eighty-two Rugby farms together the intensity of production on the dairying farms is just balanced by the easier ranching methods on the pure grazing farms.

It is hard to sum up in a few sentences the broad results of the investigations which have been carried out, as so much depends on the different points of view from which the problem may be discussed. It is undoubtedly to the interest of the community at large that as much food as possible should be produced from the land of England, and more intensive production will maintain a larger number of farm labourers. The quantity of labour employed has been shown to be roughly twice as large on the arable farms as on the grass farms, while the "energy value" of the food produced is more than three times as great. These facts taken by themselves would seem to prove that nothing can be said in defence of grass land. But, until human nature is changed, it is impossible to ignore the fact that farmers naturally wish to obtain a maximum return for a minimum of outlay and effort. This they can best do on grass land, as shown by the fact that the sales per man employed are 80 per cent. more in the Rugby district than in the Cotswold district. It is probable that if a man could be found with sufficient courage and enterprise to break up some of the old grass land of the Midlands he would grow very heavy crops and increase the production of the land enormously. It must be admitted, however, that the facts which have been collected all tend to prove that under present conditions grass farming, where soil and climate admit of the grass land being good, is the safest economic policy.

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RESEARCH WORK BY THE SOCIETY IN 1924.

I.—ELECTRIC POWER IN AGRICULTURE.

PREFACE.

THE study of the use of electric power in agriculture which is embodied in the following paper was undertaken at the request of the Research Committee of the Royal Agricultural Society. The present instalment contains an account of existing practice in electrical engineering, so far as it is applicable to agriculture, and of the most important special experiments which have been made. As the application of electric power to rural purposes is extending, it is hoped that in some future number of the Journal a second contribution may appear describing any new and useful results which may then have been obtained.

Much of this first part is merely a compilation of facts already known; but it was thought that it might prove convenient to have those facts and the inferences which can be drawn from them recorded in one place in an accessible form. Moreover, although there is now a considerable literature of the subject, it consists for the most part either of scattered papers on particular points, or of short general accounts written by pioneer workers who sometimes seem to allow the flood of their enthusiasm to drown their critical sense. This enthusiasm is natural and in a way useful, but perhaps a calmer survey may now not be out of place.

Besides studying as much of the available literature as I could find and read in the time at my disposal, I have consulted many who have special knowledge of various parts of the subject. Among them I wish particularly to thank the following:

Mr. Borlase Matthews, who first brought the question to the notice of the Research Committee, and showed me the equipment of his own farm; Captain Owen, Director of the Oxford Institute of Agricultural Engineering, who has helped me in ways too many to specify; Mr. H. G. Richardson, of the Ministry of Agriculture; Mr. Adeane and Sir Douglas Newton, who gave me details of the power used on their own land; Mr. C. G. Lamb, of the Cambridge Engineering Laboratory; Mr. F. J. Dykes and Mr. D. R. Pye, both of Trinity College; Mr. Burrough, of Wedmore, and Mr. H. E. Phillips, of Kintbury. My acknowledgments are also due to the Rural Industries Bureau, to the British Thomson-Houston Company, the General Electric Company, the Cambridge Electric Supply Company, the Austin Motor and Lighting Companies, and Petters of Yeovil, all of whom have given me valuable information about recent practice and costs. But, of course, I am alone responsible for the conclusions which have been drawn and the opinions which are expressed.

SUMMARY.

The possible applications of electricity to agriculture are of two kinds:—

(A) Where there is some specific electric action, as in the stimulation of growing crops by a high-pressure electric discharge;

(B) Where electric currents are used, as in ordinary engineering practice, to convey power from one place to another, and drive motors or light electric lamps.

Under (A) the following applications are considered:—

I. The electrolytic treatment of seeds;
II. The electric treatment of ensilage;
III. The electric sterilisation of milk;
IV. The electro-culture of growing crops;
V. The reduction of the draught in ploughing.

Under (B) are dealt with:—

I. The general problem of mechanical power in agriculture;
II. Electric energy and power;
III. The different uses of electric power in agriculture;
IV. The probable demand for electric power, and the possibility of public electric supply,
  (1) The power now used on farms,
  (2) Existing examples of electrification,
  (3) Field work,
  (4) Rural electric supply;

V. Village power stations,
    (1) Water turbines,
    (2) Heat engines;
VI. Private electric installations,
    (1) Water turbines and windmills,
    (2) Oil engines.

I find that the probable demand for power and light in purely agricultural areas is too small to be generally remunerative to large central power stations. We cannot expect supply companies or local authorities to run a network of mains over the countryside. Moreover, the cost of transforming high-tension currents down to a workable voltage is too great for a single farm. Nevertheless, an intensive study of one neighbourhood shows that, where there is a line of villages, it will probably pay to supply them with electricity at a moderate voltage, when the cost of transforming is less, and to connect up with the farms which lie within reach.

A certain number of village power stations already exist. Five examples are described, two depending on water power, two on heat engines, and one on a combination of both; figures of costs and charges are given. Village electric supply can clearly be made a success. Very little of the power thus generated is used in agriculture, but electric light is a great boon to village life, and some help to rural industries.

Several types of private installation are described, and estimates of cost and of working expenses are given. Many engine-driven sets now made are quite satisfactory, and should be found useful on farms, especially when automatic in action. And, in the future, the prospects of small electric generators driven by water turbines or by windmills should not be overlooked.

(A) SPECIFIC ELECTRIC ACTION.

I. *Electrolytic Treatment of Seeds.*

Some few years ago a treatment called the Wolfryn process was introduced, in which seeds were placed in a salt solution and an electric current passed through the bath. It was claimed that an increased yield was obtained when the seeds were grown. Further experiment has not confirmed this claim. Sir John Russell collected the available evidence in a paper which will be found in the *Journal of the Ministry of Agriculture* for January, 1920, and concluded that the few positive results were inadequate, and that no case had been made out for belief in the value of the process. Again, a subsequent investigation, carried out by Messrs. Sutton & Sons,[1] led to a negative result.

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[1] See *Journal of the Min. of Agr.*, Aug., 1920; or *Nature*, Vol. 105, p. 337.

II. *Electric Treatment of Ensilage.*

It seems that an improvement in the quality of ensilage is obtained by passing an electric current through it, probably owing to the heat developed, and I understand from Captain Owen that in Germany much research is being carried out on this subject. In particular a monograph by A. Vietze,[1] of Halle, makes clear the principles underlying the process and describes a new form of apparatus.

To obtain sweet ensilage, it is necessary to suppress the acetic and butyric acid bacteria in favour of those producing lactic acid. This can be done by raising the temperature to at least 47° C., above which only the lactic ferment can act. One method is to let the crop lie out till the proportion of water falls to 70 or 65 per cent. The crop is packed loose into the silo to a convenient depth and left so as to promote oxidation till it heats spontaneously to 50° C.; then it is consolidated, and covered by another loose layer of the same depth. To pass an electric current is merely another method of rapidly reaching the desired temperature.

In a method due to Schweizer, fully described in a paper on Electro-Fodder by H. Osten,[2] the current is passed between iron plates at top and bottom of the silo. This requires insulating sides, difficult to obtain. Vietze has therefore designed screw-shaped electrodes, which are screwed into the silage, and between these electrodes, or between the electrodes and the walls, the electric current is passed. The consumption is about 20 to 30 electric units per ton of silage, but no satisfactory estimate is given of the corresponding gain in feeding value.

III. *Electric Sterilisation of Milk.*

Experiments carried out by Professor Beattie and Mr. F. C. Lewis at Liverpool since 1914, and some supplementary work at Birmingham, go to show that milk may be treated, by passing a high-pressure alternating current through it, in such a way that its contents of bacteria are reduced by 99·9 per cent., without raising the temperature in bulk beyond 63° or 64° C. It is not quite clear whether this is due to a specific bactericidal action of the electric current or to local heating, but the conditions necessary for success seem to have been fully determined, and, from the practical point of view, no further scientific investigation seems necessary.[3] The Health Committee of the City of Liverpool established a large plant to deal with milk on these lines. It was found to work perfectly, but it was too expensive, and for that reason was discontinued. Modern views favour care in the production and handling of milk rather than sterilisation, and tend to rely on the resistant power of a healthy population to deal with the few stray harmful bacteria sometimes found in clean milk.

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[1] *Die Elektrische Futterkonservierung*, Arthur Vietze, Berlin, 1923.

[2] *Elektrofutter*, Hermann Osten, Charlottenburg, 1923.

[3] See Medical Research Committee, Special Report Series, No. 49, 1920.

IV. *Electro-culture of Growing Crops.*

Early experiments by Sir Oliver Lodge and others seemed to indicate that growing crops benefited by a high-tension electric discharge, passing between the earth and a wire network overhead.

This surprising indication led the Ministry of Agriculture in 1918 to appoint a Departmental Committee to investigate the subject, and to arrange for a grant from the Development Commission. An abstract of their fifth Interim Report appeared in the Journal of the Ministry, Vol. XXX, 1923-4, but the full reports have not been published, and for them I am indebted to the Ministry.

From 1918 till now, laboratory, pot-culture, and small-plot experiments have been carried out. From 1918 to 1922 field experiments were also made, but it was then felt that these should be postponed till the general scientific work was more advanced, and the electrical conditions necessary for success better understood. It is proposed to start field work again at an early date.

The preliminary experiments show a large preponderance of positive results. The Committee in 1923 stated that a 20 per cent. increase can be obtained with certain cereal field crops.

It seems that alternating current is rather more effective than direct current; that the current need not exceed one milliampere per acre, with a voltage of 20,000 to 60,000, and that an application for 6 hours a day for one month early in the crop's growth is even more effective than a three months' treatment.

Similar experiments have been made in America, France, Germany, and Bohemia, and many favourable results obtained.[1] But success is not universal, and in some cases electrification has damaged growing plants. It is clear that the conditions necessary have not yet been fully established.

Nevertheless, there is a strong case for further experiment. Of course, the whole thing is still very speculative. On the face of it, one would expect such a process as high-tension electrification to be more suited to the intensive methods of the market gardener than to the field cultivations of the arable farmer. Moreover, it is probable that other developments now proceeding, such as plant-breeding and improvements in cultivation by sub-soiling, &c., will produce a greater effect for a given expenditure. Even the difference between the crops of good and bad farmers is greater than that produced by electrification, and it would be easier and more economical for the bad crops to be levelled up to the good by ordinary well-known methods of improved cultivation. The extra yield of 20 per cent., or whatever it may eventually prove to be, is therefore only worth aiming at by the good farmer who is already exploiting tried methods to the full. For him electrification may prove a paying proposition, especially if the improvement be found to apply to other crops in the rotation as well as cereals, and if the ears of cereals do not become too heavy for their straw.

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[1] Trullinger: Amer. Soc. of Agr. Engineers, June, 1924.

Future results are almost sure to be of great scientific interest; they will probably help the market gardener, and may eventually be useful to the farmer. But I do not expect them to lead to immediate results of practical importance.

V. *Reduction of the Draught in Ploughing.*

In the *Journal of Agricultural Science* for April, 1924, there will be found an account of some experiments by Messrs. E. M. Crowther and W. B. Haines, which showed a reduction in the friction on a metal plate moving over moist soil when an electric current was passed from soil to plate, the plate being negative. This reduction, the authors think, may be due to the formation of a film of water, which lubricates the surfaces in contact.

Some preliminary field experiments were made to confirm or disprove this laboratory result. The field tests were made both at Rothamsted and at Mr. Borlase Matthews' farm at Greater Felcourt. The current was conveyed to the plough either by a trailing cable or from a dynamo carried on the tractor. It was found that the draught of the plough was reduced by a current between the coulter and the mould-board. The change was too small to be of practical use, but it is suggested that further experiments may lead to an improvement in the process.

Other specific effects of electricity on plants might be cited. Several are named in a useful summary presented by R. W. Trullinger, of the U.S. Department of Agriculture, to the American Society of Agricultural Engineers, June, 1924. But those considered above are probably at present the most important.

(B) ELECTRIC CURRENT FOR USE AS POWER.

I. *General Considerations.*

Modern factories and railways are continually increasing their demands for mechanical power, and are finding electric transmission convenient and economical. Hence it is sometimes argued that, in agriculture also, an increase of mechanical power operated electrically must necessarily be an advantage, and that the slowness of its adoption must be due to the stupidity or conservatism of farmers, or a failure of electrical engineers to understand rural requirements.

Now, electricity may be useful to the farmer in various ways, but the reasoning given above seems based on a false analogy. There is an essential difference between a farm and a factory.

In a factory, the bulk of the energy needed to convert the raw material into the finished product is obtained either directly from a steam engine or from electric motors driven by a steam or water turbine at a public power station. The control and direction both of the materials used and of the main motors or engines is done by hand, or by quite subsidiary low-power machinery guided by hand.

On a farm, the energy needed to convert the raw materials in soil and air into wheat or roots or grass is obtained by natural processes from sunlight. Perhaps half a calorie[1] of heat may fall on a square centimetre in a minute on a sunny summer's day in England. That means about 2,000 horse-power per acre. A thousand-acre farm, which in output may be compared with a very small factory, has freely poured on to it anything up to 2 million h.p., on which it draws for its main supply of energy. If we take a growing season of six months and suppose that we get the equivalent of three hours' sunshine a day, each acre receives heat equivalent to about 1,000,000 horse-power-hours for the farming year.

Of course, only a fraction of this energy is available, and only a part of that fraction is actually used. The fuel value of a wheat-crop of 30 bushels of grain and 30 cwts. of straw may be about 3×10^9 calories, the equivalent of some 5,000 h.p.h., the one two-hundredth part of the million received.

The limiting factor which controls the rate of growth is seldom or never deficiency of light. But sunlight, direct or diffuse, is the main source of power, and the farmer's function in life is to coax nature to use as much of this sun-energy as she will for the benefit of man. All cultivations, whether carried on by hand, horse, tractor, or electric motor, are merely guiding or controlling operations, which direct a tithe of this vast flood of power into useful channels. They are carried out only for short periods at long intervals and at different places over a large area of land.

The secondary operations, by which some of the food grown is converted into meat or milk, are also carried out by natural processes, the energy needed coming from the food, and thus indirectly again from the sun. The power used in threshing, chaff-cutting, &c., goes to finish the first rough products, and the only other large consumption of energy is in transport to store-yard or market. All this makes the power used in agriculture essentially different from that concentrated on the chief work within the walls of a factory, every day and at the same spot.

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[1] A calorie as used in physics; the biochemical calorie is 1,000 of these units.

Thus we see that the horse or machine power used in agriculture is analogous, not to the main power employed in a factory, but to that little which is used therein for controlling devices, for finishing operations, and for carrying away the finished goods. On this true analogy, the scope of mechanical power is seen to be much less in farming than in industrial manufacture. The farmer's main power station is and must be the sun.

II. *Electric Energy and Power.*

Power is defined as the rate of doing work, and the power of an electric current in watts is measured by multiplying together the electrical pressure or tension expressed in volts and the strength of the current expressed in amperes, just as the power of a waterfall in foot-pounds per minute is measured by the product of the "head," or height, of the fall and the weight of water which flows over it per minute.

One horse-power (h.p.) is defined as 33,000 ft.-lbs. per minute, and this is very nearly three-quarters of one practical electric unit or kilowatt (kw.), equal to a thousand watts.

Work done is usually measured in horse-power-hours (h.p.h.) or kilowatt-hours (kw.h.)—the work done when a horse-power or a kilowatt is used for an hour.

To convey power electrically, copper wires, carried overhead or in insulated underground cables, are needed. The currents used flow through the substance of the copper, and so the current-carrying capacity of a wire is proportional to its area of cross-section and diminishes with its length. It is then clear from the first paragraph that, to convey a given amount of power a given distance, we can diminish the copper needed by increasing the voltage and decreasing the current. That is why power companies use high-pressure mains, with currents perhaps of 10,000 to 50,000 volts. But such currents are dangerous, and it is necessary to transform them down before use. To transform easily and economically, it is necessary to use alternating currents—that is, currents periodically reversed in direction, usually 50 times a second. Alternating currents, preferably what are called three-phase currents, must therefore be used when distances are great, and such currents will almost certainly be employed in the proposed "electrification of the country" from large power stations.

The problem of the application of electric power must be regarded in two aspects—firstly, when a public supply is available; and secondly, when a private installation is necessary. These two cases are dealt with below, but, before they can be fully investigated, the chief possible uses of electric power in agriculture must be considered.

III. *Different Uses of Electric Power in Agriculture.*

There is no doubt that, if electric supply were available, farmers could use electric motors for all purposes for which they now use oil engines or water-wheels, such as chaff-cutting, grinding, threshing, root-cutting, wood-sawing, pumping, &c. Electric motors, especially those for three-phase currents, are very simple and robust. They are cheaper and longer lived than oil or petrol engines. On the other hand, most farmers only use power for a few hours a week, so that expensive transforming or generating plant might prove unremunerative.

Next there are a number of operations such as cream-separating, butter-churning, sheep-shearing, horse-clipping, now often done by hand, which can be more conveniently, speedily, and economically done by power when small motors of ½ to 2 h.p. are available. The number of these operations can easily be extended.

Then there are many new applications. For instance, Mr. Borlase Matthews uses an incubator in which a current of hot air is driven over the eggs by an electric fan. This gives a very uniform temperature everywhere, and much reduces the size of the apparatus.

It seems that the method of drying crops by blowing through the stack a current of hot air has now become a practical agricultural operation. The fan may, of course, be driven by an oil engine, and this has the advantage that the waste heat of the engine might be used to help warm the air. But in other ways, an electric motor would possibly be more convenient were current available.

There is one very important point—that electric current gives an easy, efficient, and economical method of lighting, which may safely be used where flame lights are dangerous or inadmissible. There is no doubt that electric light in cow-stalls would tend to cleanliness and save loss of milk in winter. In poultry farming, by turning on light for a short time in the evening and feeding the birds, the proportion of eggs laid in winter, when prices are high, can be increased. Again, the action of ultra-violet light for ten minutes daily seems to raise the number of the eggs laid and increase the proportion which are fertile.[1] On any farm, it is clear that with electric light some work might be carried on into later hours, while the amenities of rural life generally would be increased by good lighting. Indeed, I regard lighting as the chief function of electric current in country districts, and power as subsidiary.

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[1] Hughes and Payne: *Science*, Vol. LX, p. 549. New York, 1924.

With regard to other domestic uses, unless very cheap power is available, it is unlikely that farmers would take a very favourable view of electric cooking, and still less of electric heating. But electric irons are said to be popular, and this is confirmed in the case of farms by such experience as is available. Again, power may be employed for washing-machines where much laundry work is done, and probably other things, such as vacuum cleaners, may become common as time goes on. But at present experience shows that an occasional electric iron is almost the only article which absorbs electric current for domestic heat or power on ordinary English farms.

Hitherto, from the electrical and mechanical points of view, the applications of electric current as power which we have described are quite straightforward, and can be dealt with in accordance with known principles, though special knowledge is needed to draw specifications for some of the plant required. But when we turn to field work the case is different.

Many attempts have been made abroad and a few in England to devise a good form of electric ploughing apparatus.[1] The most common is similar to the familiar steam plough. Two electric motors mounted on wagons haul a plough backwards and forwards between them by means of a rope of steel wire. In other forms only one winding motor is used, the rope returning over a pulley on an anchored wagon at the other side of the field.[2] Another plant uses a wire rope running round four sides of a rectangle, the motor being kept throughout at one side of the field, and the plough being hauled backwards and forwards along the opposite side between anchored pulleys, which are moved as the work proceeds.[1]

In all these methods, the expenditure of energy seems to be from 20 to 40 kw.h. per acre, according to the depth of the furrow and the nature of the soil. These figures may be compared with those obtained in tractor trials. At Shrawardine in 1921 the average work done on the draw-bars in ploughing an acre 8 in. deep was 20·5 h.p.h., equal to 15·2 electric units. The tractors seem to waste about half their total output, which was about 40 h.p.h., or 30 kw.h., the same as the electrical results within the limits of variation.

Again, two horses will plough an acre of free-working land in a day of 7 hours. If we assume that a horse does the rated amount of 33,000 ft.-lbs per minute, this means 14 h.p.h., or 10·5 kw.h. On heavy land three horses may plough ¾ acre in 6 hours, so that an acre needs 24 h.p.h., or 18 kw.h. Horses seem to be very efficient ploughing machines, which apply all their energy to the job, and do not waste half of it like tractors or electric ploughs. Taking the usual estimate of 5*s.* a day for the total cost of a horse's labour and 5*s.* for a man's wage, the cost of ploughing with horses is 15*s.* an acre for light and 27*s.* an acre for heavy land. I am told by a man who owns steam-tackle that the total cost for an acre of heavy land is 15*s.* 6*d.* The cost of electric current for the same work at 2½*d.* a unit would be about 8*s.*, but, in the absence of figures for cost and depreciation of the very elaborate plant required, no useful estimate of the total cost of electric ploughing can be given.

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[1] Delamarre: *Revue Général de l'Electricité*, Dec., 1917; Siemens-Schuchart, pamphlet on *Electricity in Agriculture*; Borlase Matthews, Inst. Elec. Engineers, July, 1922.

[2] *Elletrotecnica*, Vol. 10, p. 355, also Sci. Abstracts (*Engineering*), 1923.

Now it seems probable that a large fraction of the electric energy in all these methods is wasted in hauling the rope, &c., and the difficulties of moving anchorages are considerable. Some people, therefore, have set to work on other lines, and designed ploughing sets with an electric motor attached to a balance plough. The plough carries a flexible electric cable wound on a drum, pays it out as it goes one way and winds it up as it returns on the next set of furrows. I do not know whether experiments have been made to test if the efficiency gained by hauling on an anchored chain or steel rope would be worth the extra trouble involved. In any case, with this apparatus we have a considerable weight attached to the plough, which is bad for the land. The cable must be armoured for protection, and it seems likely it would even then soon wear out.

With any system of electric ploughing, it is necessary, of course, to lead the electric current to the field, and this can be done most cheaply by means of overhead wires. The need for such connections, the danger of high-tension currents, and the difficulty and cost of hauling the very heavy winding wagons on to the field, are serious drawbacks to electric ploughing. In a flat country of large arable fields, where alone mechanical ploughing of any sort has advantage over horse-work, it seems that tractors are most convenient on light land and steam-tackle on heavy soil.

Moreover, Captain Owen finds that in recent continental experience, electric ploughing sets are subject to heavy depreciation, and, for that reason, are more costly than steam. Electric ploughing is therefore being abandoned in many districts on the Continent, and, for the time being, till some more efficient method is devised, or some definite new idea is forthcoming, it is unlikely to be successful in England.

IV. *The Probable Demand for Electric Power and the Possibility of Public Supply.*

Having thus considered some of the possible functions of electric power in agriculture, we must proceed to examine whether the demand would justify a supply company in running mains into a rural area. In other words, what amount of power per acre or per square mile would farmers use, and how would the demand be distributed over the day and over the year? The Coal Conservation Committee of the Ministry of Reconstruction (Cd. 9084) recommended the establishment of large power stations near coal-fields. If any such extension of electric power materialises, can we fairly ask for rural areas to be supplied with current? The question is pressing and important.

I have investigated the problem in two ways. Firstly, by an inquiry into the power now used on farms, and an estimate of that which would be taken for light and other domestic uses were current available. Secondly, by obtaining as much information as I could get about electric power actually consumed in those few areas where it is already available.

1. *The Power now used on Farms.*

It is, of course, impossible to deal with the question as though all farms were similar. Methods differ so profoundly that even an average would be misleading. One can only investigate individual farms representative of different types of agriculture.

I have taken four cases which may be considered to represent (*a*) grass-land dairy farming, (*b*) mixed farming, (*c*) heavy land arable farming, (*d*) light land arable farming, the first two being in the West of England, the last two in East Anglia. For each of these farms I have obtained figures, from which I could calculate approximately the energy from oil engines used to drive barn machinery during one year, and calculate also the equivalent of that energy in electric units.

If electric current were available, doubtless it would be used for lighting. A house and set of buildings might install from twenty to twenty-five lamps, and each cottage three more. Each lamp might consume about 10 electric units per annum. Other domestic uses are doubtful, but, as already said, electric irons are popular, and I am told a farmhouse might use one for five hours a week. Working at 400 watts, it would consume 100 units a year. Few dairy farms make butter or cheese nowadays—the milk is generally sold as such—but occasionally a little power might be used in a dairy.

On these lines the estimates in the table on the next page have been compiled.

The inquiries refer to large farms; but in any tract of country small holdings will also occur, and experience shows that they take less power per acre. A reduction of 20 per cent. has been allowed for this correction in the last column.

Much more power is used in winter than in summer. Thus in (*b*) the ratio was given as 5 to 1, and in (*c*) as 9 to 1. This is serious from the point of view of a Central Electric Supply Station—what is called the annual load factor is very bad.

	Percentage of Arable Land.	Energy per Acre actually used in a Year		Estimated Electric Units for Power, Light and Heat per annum		
		Horse-power-hours	Equivalent Electric Units	Per Acre	Per Sq. Mile.	
					Large Farms	Farms of all Sizes
(*a*) Dorsetshire dairy farm	15	1·16	0·87	3·6	2,000	1,600
(*b*) Devonshire mixed farm	45	10·4	7·8	10·0	6,000	4,800
(*c*) Cambridgeshire heavy land[1]	60	8·8	6·6	8·5	7,000[2]	5,600[2]
(*d*) Cambridgeshire light land	75	15·1	11·3	12·0	7,500	6,000

2. *Existing Examples of Electrification.*

Now let us compare these predictions with the actual consumption of electric energy where current is available and motors and lamps at work. Unfortunately, all English examples are in grass countries, and for arable land one must look abroad. I have obtained figures in the following cases:—

(*a*) At Wedmore, in Somerset, a local company supplies the village and neighbourhood, including fifty-two farms, consisting of grass with orchards, to a total area of 4,053 acres. In one year these farms used 6,274 units for light, and 1,001 for power.

(*b*) In Herefordshire, rural mains have been installed with the help of the Development Commission. The figures are taken partly from a report and partly from more recent verbal information. They are probably not very accurate.

(*c*) Mr. Borlase Matthews gave the Research Committee of the R.A.S.E. details about twenty-one British farms of a total area of 1,342 acres, of which 84½ acres are arable land.

(*d*) Figures for Würtemberg before the war are given by Reisser,[3] (1) for a large farm of 230 acres, and (2) for twenty-five small farms with a total area of 581 acres.

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[1] No grinding done.

[2] The figures have been raised to allow for this.

[3] *Elektrische Energieversorgung ländlicher Bezirke*, Walter Reisser, Berlin, 1912.

	Percentage of Arable Land	Electric Units			
		Used per Acre for Power	Used per Farm for Light	Power, Light and Heat	
				Per Acre	Per Sq. Mile
(*a*) Grass and orchard farms near Wedmore	—	0·25	120	1·7	1,080
(*b*) Herefordshire farms.	—	—	—	3·1	1,880
(*c*) Small farms described by Mr. Borlase Matthews	6·3	0·49	212	4·4	2,600
(*d*) Würtemberg small farms	—	—	—	10·0	6,000
Würtemberg large farm	—	—	—	11·0	6,800

It will be seen that these realised results agree fairly well with the estimate based on the power of oil engines used on English farms. It appears that the total consumption of electric energy for power, light and heat varies from about 1½ to 11 units per acre, as the proportion of arable land rises. This indicates a present demand of 1,000 to 6,000 units a year per square mile of country, if all farms took the current when available. It makes no allowance for future developments in the use of electric current, but it is probably a maximum estimate in present conditions.

Now, for an Electric Supply Company, these figures seem absurdly small. In towns the consumption per square mile may be a hundred times as much. Moreover, the fact that farms use power at irregular intervals, for short times, and much more in winter than summer, makes the agricultural load very awkward and unremunerative: I am told that it is becoming very unpopular with supply companies on the Continent, wherever farms have been connected with the mains.

But, before dismissing central supply for rural areas as impracticable, we must consider the possibility of increasing the agricultural demand and of combining it with other uses for electric current in country districts.

3. *Field Work.*

As explained above, it is unlikely that at present electric power will be used for moving field work, but it may be of interest to see how the demand for current would be affected, if ploughing were done by electric motors.

In a grass dairy country the proportion of arable land is so low, and the fields are usually so small in size, that nothing but horses can be used, but in flat neighbourhoods where there is more arable land, the use of mechanical power becomes possible.

If we reckon that three-quarters of the arable land on a farm is ploughed each year, and allow another ploughing for land under roots, on mixed (half arable) farms some 300 acres are ploughed per square mile. For light land this will need about 15 h.p.h., and for heavy land perhaps 24 h.p.h., per acre. For medium land we may take 20 h.p.h., or 15 kw.h., at an expense of 15 × 2 = 30 kw.h. per acre, or 9,000 units per square mile. If three-quarters of the land is arable, this rises to 12,000 units. Thus the work which would be done in ploughing seems somewhat to exceed that absorbed by light and farmyard machinery.

But, as said above, experience shows that at present electric ploughing is not usually convenient or a financial success, and, till new or improved methods are devised, we cannot fairly reckon it as likely to add to the agricultural demand for electric power.

A much more promising outlook is presented by fans for drying crops. These seem likely to be a real help to farmers in wet seasons. Possibly they will not be much used in dry seasons, but even then it may pay thus to treat some crops while others lie in the sun.

I think that usually it would be found better to drive some of the fans at all events by an oil engine, for the following reason. Green crops are perhaps three times the weight of dry crops, so that to save carting, it will be well to stack them on the field. Bringing wires to the field may be troublesome and expensive—it will usually be found easier to take a portable oil engine or tractor. Nevertheless, where current is available, for a field near the homestead or for ricks built in the farmyard, doubtless electric power will be used. Perhaps this might cover half the total of the crops dried artificially.

The Oxford results go to show that, with hot air, a 20-ton rick can be dried in 9 or 10 hours. Assuming that about 5 h.p. is used, this seems to indicate a consumption of 2 kw.h. per ton. Perhaps 200 tons of hay, or its drying equivalent in other crops, may be made per square mile. If half of this be dried artificially, and half that by electric power, we get as a guess 50 tons, taking 100 kw.h., per square mile of country—a small addition to the probable demand.

4. *Rural Electric Supply.*

Since electric ploughing is not likely to develop in the near future, and the demand for electric power for drying crops is likely to be small, it will be safer to return to those uses of electricity already proved, and the actual consumption of power by barn machinery. Here, as we have seen, the probable maximum annual consumption per square mile for purely agricultural purposes for which power is now used and for light, &c.,

ranges from about 1,000 units on grass-land to 6,000 units in an arable country.

Of course, farms are not the only consumers even in a rural area. The supply might be taken by waterworks, blacksmiths, flour-mills, cider-works, laundries, and iron-works. Country houses, vicarages, and some cottages would install electric light and pumping plant. It is impossible to estimate the total demand without an intensive study of some one neighbourhood.

To do this, I have taken the country for ten miles round Cambridge. I have excluded Cambridge itself and the suburban parishes, which have already an electric supply. Then I have taken that invaluable guide-book, Kelly's Post-Office Directory, and gone through it parish by parish and noted areas, population, and any industries likely to use power.

A first rough estimate of the probable maximum present demand for power and light can be obtained on the basis of population. Experience in towns shows that the payment per head of population for electric current ranges round an average of about £1 per annum.[1] Cambridge is below the average with a consumption per head of 36 kw.h., charged for at 15*s.* 11*d.*, an average of 5·1*d.* a unit.

It is probable that the non-agricultural rural demand, even when fully developed, would be somewhat less. We shall perhaps not be far wrong in reckoning it at from half to two-thirds of that in the town, or say 20 units costing 10*s.* a head, when all likely premises are connected. It would probably be considerably less at first. At Wedmore the average for all consumers, including the farms mentioned above, is 10 units a head, at a cost for meter rent and current of 11*s.* But there the high charge of 1*s.* a unit for light must tend to diminish consumption.

The population of the Cambridgeshire parishes within the ten-mile radius at the 1911 census was 45,795, and the area 277 square miles, or 165 persons to the square mile. As the county is chiefly arable, we may guess the number engaged directly in farming operations to be somewhere about 20 to the square mile, who with, say, an average of three in family,[2] give an agricultural population of 60 to the square mile, or in all 16,620. This leaves about 105 to the square mile, or a total of nearly 30,000, for the remaining population.

If all these people could be reached, their probable demand for electric energy might run to some such total as 600,000 units at £15,000 a year, or 2,100 units and £52 per square mile.

Now, we have estimated the maximum agricultural demand from farms of all sizes in an arable country to be about 6,000 units a year per square mile. Perhaps 4,000 units a year per square mile will be a fair guess for the average agricultural demand in Cambridgeshire. Reckoning at 6*d*. a unit,[1] this gives a revenue of £100 a square mile, or, adding in £52, the non-agricultural demand, a total of about £150 per square mile.

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[1] See tables in the *Electrical Times* for September 4, 1924.

[2] See Bowley, *Economica*, May, 1921.

For comparison it may be noted that the present area served by the Cambridge Electric Supply Company is about ·13 square miles with a population of 64,000. The total revenue of the Company in 1923 was £49,900, that is, £3,800 a square mile. This shows how extremely small the probable rural demand per square mile is compared with the urban demand.

No supply company could run a network of mains over a countryside to meet the rural demand even when supplemented by that for agricultural power, especially since that power is chiefly used in winter with a very bad annual load-factor. And again, in planning rural extensions, still other difficulties arise. To cover the long distances involved in a complete rural service, it would be necessary, in order to economise copper, to erect high-tension mains, carrying electric current at 10,000 to 50,000 volts. But such mains are costly, running into thousands of pounds a mile. It would not pay to erect a network of high-tension mains for the rural demand alone. Moreover, even if such a main ran from one town to another, a farm on the road might not be able to get current from it. These high pressures are dangerous, and must be lowered to at most a few hundred volts before being used. But a high-tension transformer is very expensive, and the demand from a single farm is much too small to make it profitable to install a transformer; it may even be cheaper to erect a private generating plant, if electricity be wanted. All this goes to show that central station supply can only be made available for farms when mains and transformers are erected for other purposes. It is not practicable to spread a network of mains like that in a town over a purely rural area.

But when we examine the problem further, a more favourable outlook appears. The rural population is not spread evenly over the countryside. A study of a map generally shows chains of villages, often following the line of a river or a road, and ending, perhaps, in a little town. For instance, in Cambridgeshire, we notice at once three such chains diverging from Cambridge: (1) through Shelford and Sawston to Chesterford and Saffron Walden in Essex; (2) through Melbourn to Royston in Hertfordshire; (3) through Cottenham and Willingham to St. Ives and Huntingdon in that county.

As an instance, I have studied the first of these chains of villages, and followed it till it leaves the county of Cambridge. The population in 1911 was 7,000, for the most part concentrated in villages, of which the largest are Great Shelford with 1,466 people, and Sawston with 1,578.

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[1] The charge in Cambridge for light is 7*d*. and for power 4*d*. a unit for the first 100, and then 1½*d*. a unit.

For this short distance the current could be carried at a much lower pressure, say 5,000 volts. The mains might then be erected for about £500 a mile and transformers for £150 each.

If a main were run from Cambridge through these villages, its length would be about 11 miles, of which 4 miles are already served with current. The remaining 7 miles run to Ickleton, beyond which we enter Essex. Along these 7 miles transformers would be placed at convenient places, probably one in each village, and would serve a distance of a mile on each side. But farm-houses at this distance would have some of their fields beyond it, so we may reckon on serving 1½ miles of country on each side of the main, or about 20 square miles in all.

Estimating by the same method as above, we find the agricultural demand likely to be about 20 × 4,000 = 80,000 units a year, which at 6*d*. means a revenue of about £2,000.

The final non-agricultural demand may be calculated in two ways, which serve to some extent as a check on each other.

(1) On a basis of population. The non-agricultural population being about 5,800, at 10*s*. a head the probable final demand is £2,900. If they only took 10 units a head as at Wedmore, at 6*d*. a unit, the revenue would be £1,450. Perhaps a probable guess, somewhere between these values, would be £2,000.

(2) Kelly's Directory shows in these parishes 220 private houses, and 227 names other than farmers of sufficient standing to appear in the commercial list. If we assume an average consumption of 100 units for light in each of these 447 premises, we get about 45,000 units for lighting. In Cambridge the charge for lighting is 7*d*. a unit; perhaps 8*d*. might be charged in the country. This indicates a revenue of £1,500.

Kelly also shows the following village industries likely to want power: 1 mill now using steam power; 3 motor engineers; 1 gelatine works; 6 builders; 5 carpenters or wheelwrights; 1 iron foundry; 6 leather works; 1 mineral-water works; 2 blacksmiths; 1 paper factory; 1 brewery; 2 chemical or manure works; 1 agricultural machinist.

In these industries the probable total annual use of power seems to be something of the order of 100,000 units. If we assume that one-third of this materialises into an effective final electric demand, we have 33,000 units. Power is charged for at a lower rate than light, and, if we take the highest reasonable charge of 3*d*. a unit, we get a probable revenue of about £400. If we add this to the £1,500 for light, we get a probable non-agricultural revenue of £1,900, which compares very well with the £2,000 estimated on a population basis. These figures are little more than guesses, but they are probably of the right order of magnitude when the demand has risen to its maximum.

The probable agricultural revenue, we found, was £2,000. We thus arrive at a total probable final revenue from this chain of villages of about £4,000 a year, derived from the sale of about 160,000 units. If we suppose the cost of production at the power station is 2*d*. a unit, it amounts to about £1,700, and we get left with a gross income of £2,300 to meet the cost of installation and of the upkeep of the rural mains.

The cost of installation, including mains, transformers, legal expenses, &c., may be roughly estimated as about £15,000 for this chain of villages. On this capital, a gross return of £2,300 a year, after paying the central station costs, is probably above the margin of remunerative investment. But at first the cost of wiring would deter some potential users, and the immediate return would almost certainly be less.

The estimates of probable demand which have been given are in many ways arbitrary, and can only be a very rough approximation. But they seem to warrant a further consideration of the possibilities of a chain of villages in an arable country, especially where an additional load can be expected at the end of the chain. In this particular case, for instance, the mains would naturally run on for five miles to Saffron Walden in Essex, through Chesterford and Littlebury. These places have a total population of about 8,000, and, at the expense of a heavier main and further connections, might give additional gross revenue of £3,000 or £4,000.

The disastrous failure of the Hereford experiment, and the unfavourable results of much foreign experience which are now becoming manifest, may dispose the minds of the directors of supply companies and of the Development and Electricity Commissioners to ignore altogether the agricultural possibilities of central station electric power. Those possibilities are small compared with the demand in towns; but, in carefully chosen circumstances, they are worth consideration, and the future action of the Commissioners and of the Supply Companies should be watched by agriculturists.

V. *Village Power Stations.*

The difficulty of carrying high-pressure mains over a sparsely populated country can be evaded in two ways—either by a village supply or by a private installation.

If a village is situated on a river, with a convenient fall near at hand, the best and cheapest supply can be obtained from water-power. Failing that, it is possible that, in future, windmills may be employed as a source of electric current. The problems they present are of much interest, but have not yet been fully explored. Finally, if no natural power be available, an engine burning oil or suction gas can be used. The running expenses will be more, but possibly the capital outlay less than that needed to harness water-power.

1. *Water-power.*

Two successful examples of village supplies driven by water may be mentioned—Llannwchllyn, near Bala, in North Wales, and Greenlaw in Berwickshire. At Kintbury in Berkshire the water turbine is now supplemented by an oil engine.

The power of a waterfall in foot-pounds per minute is measured by the head, or height of fall, in feet, multiplied by the weight of water which flows over the fall per minute. This product, divided by 33,000, gives the "water-horse-power." How much of this can be converted into "brake-horse-power" on the turbine, or "electric-horse-power" in the current, depends on circumstances. Each river presents its own problem, and appropriate apparatus must be designed.

If water be plentiful and falls high, as in North Wales, the solution is simple. At Llannwchllyn, two Pelton wheels, driven by the impulse of jets of water from a fall of 70 ft., together develop up to 40 h.p. and turn a dynamo giving 240 volts direct current. There are no accumulators; the dynamo runs night and day for months together, with a few minutes' daily attention for lubrication. Current is supplied to the village and a mile or more round, at 1½*d*. a unit for power and 4*d*. to 6*d*. for light, according to distance. These low charges are possible owing to the favourable nature of the water supply, and to the fact that the plant was partly made, and partly bought second-hand and adapted, by a local engineer, who owns the undertaking—a good instance of private enterprise.

Kintbury gives an example of a low head of water, only 5 or 6 ft. being available. Here, an automatic system was installed in 1913 by the Austin Motor Company. The battery of 122 cells will light 600 lamps of 16 candle-power at 220 volts for 10 hours. It is charged by a 6-kw. dynamo driven by a reaction turbine. This is controlled by automatic sluice-gates which open and start the turbine when the battery needs charging or the load on it becomes high. The automatic system is economical of labour, occasional inspection for lubrication and adjustment being all that is needed. The charges at Kintbury are 1*s*. a unit for light and 3*d*. a unit for power. I am informed by the Austin Company that the first cost of a similar plant, including building, turbine, dynamo, and battery, would now be about £800. To this must be added any cost necessary to alter water-courses.

In 1922, in order to supply new consumers, an addition was made, consisting of a 25 h.p. oil engine and dynamo. During the time of peak load of 80 or 90 amperes in the evening, the current is supplied direct from the two dynamos driven parallel. When the load falls to about 60 amperes, the engine is stopped, and the turbine and battery run unattended through the night.

Batteries of accumulator cells are expensive both to install and to keep in order, and they need skilled attention. Nevertheless, the advantage of being able to store electrical energy as chemical energy within them often overrides these drawbacks. Unless the effective power obtainable when the water supply is low is enough to take the highest probable electric load, some kind of storage is necessary, and though water stored in a reservoir may occasionally give a possible solution, usually the best method is by means of accumulators. A small but steady stream of water can then drive a turbine and dynamo, if necessary for the whole 24 hours, and two or three times the steady current thus obtained can be drawn off from the battery to take the lighting load for 5 or 6 hours in the evening.

This advantage is well shown by a water-power installation at Greenlaw in Berwickshire, where, I am informed, about 80 per cent. of possible consumers are connected with the mains, the charges being 10*d.* a unit for light and 3*d.* for power. There is a considerable demand for power by day, and the peak load, which comes from 5 to 8 p.m., needs in winter more than twice the current supplied by the dynamo, which, at that season, must run for at least 21 hours a day to produce the electric energy used. Thus the effect of storage batteries is to enable a comparatively small generating plant to deal with a load otherwise much beyond its capacity, the plant being run nearly continuously at its maximum efficiency.

2. *Heat Engines.*

At Wedmore, in Somerset, to which reference has already been made, a Limited Company supplies electric current.

It is developed by two dynamos, together giving about 40 kw., driven by two suction-gas engines. The energy is stored in a battery of 133 cells, and is distributed as a direct current of 230 volts to the village, and by three rural lines up to 3 miles' distance. The service is continuous, the battery taking the load after 11 p.m. The cost for building, plant, cables, poles, &c., erected before the war, was a little over £4,000. The charges were at first 6*d.* for light and 3*d.* for power, but they have now been raised to 1*s.* and 10*d.* It is interesting that consumers are willing to pay such high prices. It is stated that "the cost of renewals is heavy, especially for the battery." But the Company is successful, and, after an interval during the war, has now resumed payment of 5 per cent. dividends.

Another example is to be found at Hexton, in Hertfordshire. Here two oil engines drive two generators, of about 15-kw.

output, which charge a battery of 60 cells. This plant, like that at Kintbury, is automatic in character. When the battery needs charging, or the load becomes too heavy, the battery, using a dynamo as a motor, starts one of the engines, which stops when charging is complete.

The first cost of a similar plant would now amount to £1,000 or £1,100, and the cost of a building. At Hexton the present maximum load is about 10 or 11 kw. A charge of 9*d.* a unit has been made, but this is now to be lowered to 7*d.* a unit for light and 2*d.* for power.

These four examples are enough to show that village electric supply is quite feasible, and, in very diverse conditions, may prove successful financially. Whether or no it be used to give power for agricultural purposes, it certainly adds greatly to the comfort and amenities of life in farm-houses and in rural villages generally.

VI. *Private Electric Installations.*

The facts given above show that in all probability public electric supply from large central stations will only be available for those farmers whose holdings lie near electric mains, perhaps even transformers, put down for other purposes. Village supply has proved successful in many cases, but is not likely to be arranged everywhere. We must therefore consider how far it is possible and advantageous to install private plant.

Electricity in engineering is, of course, merely a means of conveying power from place to place. When a farmer's only requirement is to use occasionally a good deal of power at one time to drive barn machinery, chaff-cutters, &c., in one building, or other machines in a place to which a portable engine or tractor can be taken, he may just as well drive direct from his engine, and not bother about electricity.

But good lighting is always useful, and sometimes it is desirable to work small machines—separators, fans for incubators, &c.—which need but a small fraction of the power of the tractor or engine. Sometimes, also, these or other machines are wanted at times or places when or where it is not convenient to run an oil engine.

1. *Water Turbines and Windmills.*

If a farmer have water-power at hand, he will do well to consider its possibilities. A steady stream, with a fall of 3 ft. and upwards, may do all that is necessary, either alone or with the help of accumulators. A mill-pond may perhaps serve the purpose of storage. But at present water-power plant is not standardised, and each case needs skilled consideration on the spot.

Again, in the near future, wind-power may prove successful for charging accumulators for small-scale installations. Messrs. English, of Wisbech, exhibited one such plant at the Leicester Show in 1924, and Captain Owen, of the Oxford Institute of Agricultural Engineering, is examining another design invented in Germany, and is investigating the whole subject scientifically.

2. *Oil Engines.*

Nearly all farmers now have an oil engine, and the addition of a small dynamo and battery gives a quite satisfactory electric plant. If the cells are of adequate size to carry on for some days, the dynamo need only be run when chaff-cutting or other work calls for the starting of the engine. Any maker of electric plant will supply what is necessary to fit an existing engine.

If a complete plant, including an engine, is wanted, its size and cost will, of course, depend on the number of lamps and motors to be driven. Not more than half the lamps fixed are likely to be switched on at once; indeed, the usual allowance in larger installations is one-third. Each lamp consumes about 20 watts, so that on a small farm, with 20 lamps fixed and 10 possibly burning at once, the maximum load is 200 watts. If no power is needed, a ¼-kw. (250-watt) plant would just take this lighting load, though with little to spare. With 13 cells, giving a 25-volt current, it should cost about £50, and another £20 should be allowed for wiring and sundries. But it would be better to have some reserve and install a ½-kw. plant at a cost of, say, £80 and £20 for wiring, £100 in all. The total running expenses, including interest, depreciation, repairs and fuel, should be about £20 a year. This should prove a useful outfit for a farm wanting up to 30 lamps, and occasionally a little power to drive a separator or the fan of an incubator. Heavier work should be driven direct from the engine. Here, again, an automatic arrangement, as described above for village supplies, can be used to charge the battery when it needs it.

Some makers carry the automatic principle further and use only a few cells to start the engine. When a lamp is switched on, these cells give a current and start the engine as does the self-starter of a motor-car. The engine then takes the load and runs till all lamps are switched off. But any inequality in the running of the engine is reflected in a flicker of the light, and to work an engine to drive one lamp must involve a certain waste of power.

More usually, no automatic device is fixed, and the engine is controlled by hand. If electric power is wanted as well as light, it will be desirable to increase the size (not necessarily the number) of storage cells. In new installations, both engine and battery may perhaps conveniently be put down in a rather larger size than for light alone.

A very common plant on the larger scale for private installations consists of a 5-h.p. oil engine driving a direct-current dynamo which charges a battery of 54 cells of 75 ampere-hour capacity with a normal output of 2,000 watts, that is, 2 kw., at a pressure of 100 volts. An alternative battery has a capacity of 120 ampere-hours and a normal output of 3·2 kw., equivalent to 4·3 h.p.[1] Let us consider this larger size.

Such a battery, when charged, would deal with a lighting installation up to 300 lamps, one-third to one-half of which may be used at once, and *at other times* would drive any motor up to 3 or 4 h.p., and for a short time would perhaps manage 5 h.p., though probably at the expense of the life of the cells. If it and the engine were run together, a load of 8 or 9 h.p. could be taken. The time required to charge the battery would be rather more than the time it was discharging on full load of 4 h.p. All this is possible, but it would generally be better to drive any machine over (say) 1½ h.p. from the engine direct, or from a motor connected to the dynamo while it is being driven by the engine, and keep the cells, when working alone, for lighting and for driving small motors of ½ to 1½ h.p.

The distance over which this plant would supply light or power is limited. A common practice is to allow at least one square inch of cross-section in the copper wire for 1,000 amperes current. If the wire had to carry 5 h.p. or 3·75 kw. at 100 volts, the maximum current would be 37·5 amperes, and the diameter of the wire must be about ¼ in. With such wires, and the maximum current, we should get a drop of about 5 volts in the electric pressure for each 100 yards of line, including wires out and return. Thus for each 100 yards' distance from the source at maximum load, we lose 5 per cent. of the power. Motors and lamps at the end of a long line must be arranged to work on lower voltage, but if only 1 kw. were needed, *e.g.*, to light 50 lamps, only 1 volt per 100 yards would be lost on the way, and the range is increased to about 500 yards.

I think this simple adaptation of a standard lighting set would prove useful on a farm (especially the home farm of a country house, where skilled labour to look after the dynamo and battery is available) when the normal demand does not exceed an occasional ½ to 5 h.p., and all the motors and lamps are within a few hundred yards of the engine and battery. But its chief function, of course, is lighting—it would not be worth installing for power alone. The cost of the engine, dynamo, switchboard, and battery would be about £300. That of wiring and motors would vary with the distances and requirements. Motors of ½ h.p. may cost from £10 upwards, and those of 4 h.p. from £30.

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[1] The figures given are of Petters' plant. That of other makers might differ in details.

Wiring for short distances may be reckoned at about £1 a point, taking both light and power together. The cost of copper and of erecting an overhead main may be put at about £12 to £15 for each 100 yards, or £10 if home-grown poles are used.

The working cost may be estimated to be somewhat as follows :—

	£	*s.*	*d.*
Interest at 5 per cent. on £600 total cost	30	0	0
Depreciation at 10 per cent. on battery	10	0	0
„ „ 5 per cent. on engine, dynamo, and motors, &c.	12	10	0
„ „ 2½ per cent on mains (500 yards) and wiring (200 lamps)	6	5	0
Repairs and maintenance	10	0	0
Labour, one-sixth of man's time at £150	25	0	0
Fuel and lubrication at 10 kw.h. a day for one year	40	0	0
	£133	15	0

Thus, with an adequate allowance for contingencies, the total cost of this installation should not exceed £150 a year, and the cost of energy per electric unit should be under 10*d.*

If more power than this be wanted, the apparatus will approach in size and output that of the village power stations already described.

In closing this short survey of the present state of the subject, it may be well to point out that further progress is to be sought in two directions. Firstly, in developing on farms uses for electric power new or already known; and secondly, in improving existing generating plant, and especially in adapting it to small-scale rural use. Probably, in the near future, most improvement will be made in the application of water-turbines and windmills to the solution of this problem.

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II.—Spring Oat Trials, 1923–24.

Early in 1923 the Research Committee of the Royal Agricultural Society of England—being aware of the lack of information available concerning the relative merits of the various spring oat varieties on the market—were authorised by the Council of the Society to delegate to the National Institute of Agricultural Botany the carrying out of a series of yield trials of oats on a field scale on a principle devised by Dr. E. S. Beaven, of Warminster, Wilts, and already successfully employed by the Institute for determining the comparative yields of varieties of wheat and barley.

In order that all the varieties should be given an equal start in the trials, in 1923 half-acre plots of all the varieties which it was decided to include—namely, Abundance, Black Tartarian, Potato, Superb, Supreme, and Victory—were grown in the same field under identical treatment at the Hiam Farm, St. Ives, Hunts. The produce from these plots was used to seed the trials proper, which were carried out in 1924 on the drill-strip method.

METHOD.

Dr. Beaven's Drill-Strip method of test was devised with the object of decreasing the effect of external factors, such as soil irregularity, depredations of birds, rabbits, etc., contour variation, irregular shading, and other circumstances which have been proved, in single-plot trials, to militate seriously against the reliability of the results. The only way of discounting the effect of these factors is by the multiplication of plots and their distribution over the trial ground in such a manner that the varieties under test shall have, as far as possible, an equal chance of encountering the same proportion of favourable and unfavourable conditions. For the trial to be of practical value it is important that the crops shall be grown under conditions closely approximating those which they would encounter in normal farming practice. Where several varieties are under field test no satisfactory device has been found by which plots of each variety can conveniently be distributed under anything like normal farming conditions over the whole area used for the trial. Thus, owing to mechanical difficulties, no direct comparison of the relative yielding capacity of four or five varieties, each against each, can be made. To circumvent this difficulty a "standard variety" is selected which has already been widely grown by farmers throughout the country, and the qualities of which are consequently generally known. With this "standard" a direct comparison of each of the other varieties is made in turn. The variety under test and the "standard" variety are, wherever possible, each grown on ten or more alternating strips of about $\frac{1}{30}$ acre per strip. To achieve this the seed-box of the drill is divided into two equal compartments, and if the coulters of the drill are an odd number, the centre coulter is put out of action. Drilling then proceeds with one-half of the seed-box delivering seed of the "standard" variety while the other half is delivering that of the variety to be tested. Thus, after each "turn" of the drill, two half-drill strips of one or other of the varieties are seeded alongside, so that when the drill has completed twenty-one "turns" there are ten drill widths of each variety, and an extra half-drill width at each end. In practice twenty-two "turns" are usually made, and one outside drill-width (two half-drill strips) at each end of the test is discarded at harvest. It is, of course, essential that the spacing of the coulters is accurate, so that equal areas are seeded with "standard" and with variety under test, and sufficient space, usually 9 in., is left between the two inside coulters for accurate separation when harvesting. The harvesting is carried out with a self-binder or with a sail reaper, a half-drill strip at a time; or, if the crop is laid, it is often possible to cut with scythes or even with sickles. The produce from each half-drill strip is separately weighed up in the field. In stacking, the produce of all the ten strips of the "standard" variety are placed in one stack, and all that of the variety under trial in another.

PROBABLE ERROR.

In addition to neutralising the effects of external conditions, one of the great advantages of having the variety and the "standard" grown in several plots is that from the separate weighings so obtained the amount of reliance which can be placed on the result of each set of comparisons can be calculated out by statistical methods.

In view of the lucid exposition of the value and use of statistical methods in this connection, given by Dr. Beaven in the *Journal of the Ministry of Agriculture*,[1] when first introducing the drill-strip method of trial to the public, it would here be superfluous to go into the question in detail. It is sufficient to say that calculations give in each set of comparisons a figure known as the "Probable Error"—an average error which affords "a measure of the unreliability attaching to any average of results by reason of the operation of chance conditions."

The degree of unreliability indicated by any probable error depends on the size of the probable error in proportion to the quantity to which it refers. For instance: if the probable error of a difference between two averages of say 5 per cent is as much as 3 per cent, it is an indication that the difference of 5 per cent is one that might easily be due to chance conditions. If, however, the probable error of the same difference is only 1 per cent, it would be extremely improbable that such a difference (5 per cent) arose entirely from chance conditions.

If the difference between the average yields of two varieties exceeds the "probable error" of their difference by three times, the odds are 21 : 1 in favour of that difference being significant, *i.e.* the odds are 21 : 1 against it having arisen from the operation of chance events. If the difference equals four times the "probable error," the odds are 142 : 1; five times equals 1,310 : 1

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[1] Vol. XXIX, Nos. 4 and 5, July and August, 1922.

and so on. In this trial differences exceeding three times the probable error are regarded as significant.

Since the separate storage and threshing of the produce of each half-drill strip presents almost insuperable difficulties, the "probable error" is calculated from the weights of total produce (grain and straw) of the several strips as obtained in the field, and is applied to the relative yields of grain and of straw when threshed. The justification for this procedure rests on the experience of Dr. Beaven, who, from the tabulation of results of a very large number of similar cases, has found that the probable errors of the weights of grain are in fact lower than those of the corresponding total produce weights.

As far as straw is concerned, there is perhaps less justification for adopting the total produce probable error; consequently the straw data in these trials have not been considered to be significant unless the differences exceed four times the probable error.

The total yields obtained are naturally influenced to a certain extent by the dryness of the produce. This is a fortuitous circumstance, and should, where possible, be allowed for.

At time of threshing, therefore, when the grain weights were taken, complete sets of samples of grain were placed in sealed bottles and were immediately afterwards submitted to a moisture analysis in the laboratory. These determinations established what percentage should be deducted from the grain weights as threshed, and the grain ratios given below represent the comparative yields of dry grain produced.

This precaution has not been taken in the case of straw, for the difficulties of accurate sampling and analysis are almost insuperable, and it is the yield of grain and not of straw which is the point of real importance to the farmer.

Although yield at the present time is the factor which has the preponderating influence on the financial success or failure in growing a crop, quality has also to be taken into account, and as will be seen below, efforts have been made to obtain some idea of the relative quality of the varieties included in the present trials.

In estimations of percentage of husk, bushel weight and thousand corn weight, as in yield, the figures given are each averages of several determinations made on each separate bulk. In this way it is possible to calculate the degree of reliability which can be placed on the determinations of quality, as of yield, by the use of the "probable error."

Details of drilling, etc., of the several stations are given below.

REPORTS ON THE SEPARATE STATIONS.

BABRAHAM.—The soil was a light loam overlying gravel.

The total area drilled occupied approximately 3 acres.

The total area harvested and counted for trial was approximately ½ acre for each of the 5 plots, viz. ¼ acre of control and ¼ acre of variety under test.

The previous cropping was: 1921 clover, 1922 wheat, 1923 mangolds—then received about 10 tons of dung and 3 cwt. superphosphate per acre.

Drilling was done on February 12, 1924, and the seed rate was approximately 3¾ bushels per acre. There was a good free tilth, and the seed was readily covered. On May 13 the crop was inspected, and it was found that the "plant" in many places was thin and patchy owing clearly to bad attacks of wire-worm, and that growth had been slow during the spring. On July 12 the whole area was very full of weeds, principally poppies, also some thistles and knot grass. It had been impossible to keep these in check by hoeing, as sainfoin had been sown under the crop. The thickness of the crop varied considerably, but was on the whole a moderately good one. Thunderstorms and unsettled weather from July 29 to 31 delayed cutting until August 1, on which date four plots were cut by binder—the crop was dry and in good order. Weighing of sheaves by strips was carried out on August 6—unsettled weather having intervened, but the sheaves were dry and in good condition (except for the butts). The 5th plot, "Potato" with "Abundance" as control, was not ripe until August 7, and was then cut by scythes and tied by hand and weighed in fine dry weather. For the whole crop the grain and straw were dry, but the butts contained about 5 per cent of green poppy with some knot grass which increased the weight of the sheaves. These butts dried out well before threshing, so that the weight of grain and straw together in sheaf will contain this extra green element which will be absent from the comparative weights taken of grain and straw (separately) at threshing. The amount of weed, however, is a fortuitous circumstance, and although it has an adverse effect on the actual yields, it should not influence the ratio of control to variety.

Threshing was completed in one day in dry condition on August 27, after the crop had been in ten small stacks, corresponding to the produce of the plots—control in each case being dealt with separately from its corresponding stack of variety under test. The grain and the straw of each stack were weighed as they came from the machine.

LYDNEY PARK.—The trial was laid out on the site of a natural pasture from time immemorial until ploughed up in 1922. The cropping has since been: 1922 Roots, 1923 Yeoman wheat (a heavy crop)—10 tons of farmyard manure was ploughed in the autumn of 1923—no further manure for 1924 oat trial.

The soil is a ruddy loam, light, but fibrous from previous pasture. The old red sandstone rock is only a few inches below the surface, and ploughing not more than 4 to 5 in. Height above sea-level 40-60 ft. The field was on a gentle slope and affords a warm aspect.

Drilling was done on March 6, 1924, in fine weather and with good tilth. The seed rate was approximately 3 bushels per acre. The area drilled was slightly under 3½ acres. On June 7 the plots were reported "to be looking exceedingly well." On June 24 the crop was a heavy one, and lodging was anticipated. "Flagging" was suggested, but it was much too late to do this. On July 4 the crop was luxuriant. The straw of Abundance was about 4 ft. 6 in. high and the others not much less. The crop was clean and exceptionally uniform. Between July 4 and August 19 the weather in this district was very inclement—a number of very wet days and several heavy storms of wind and rain. The contents of the strips were laid and twisted about in all directions, the long straws of the control and its varieties were intermingled, and to cut with the binder was out of the question. Hand labour for scything was scarce, as all other crops were being cut by scythe. Moreover, a secondary growth of green oats of mixed origin was appearing, and any chance of obtaining accurate comparisons between adjacent half-strips of control and variety was out of the question.

Under these circumstances it was deemed necessary to abandon the trial.

KIRTON.—Soil: deep, rich, alluvial. Cropping: 1922, Various market garden crops; 1923, Potatoes. Manures per acre—no farmyard manure:

30 per cent Super	6 cwt.
Sulphate of Ammonia	2 cwt.

Potash manures of various forms each supplying approximately 100 per cent of K_2O.

The area drilled was approximately 3 acres. The total area harvested was approximately 1 acre, and owing to necessary rejections of strips on account of interference the actual area per plot to count for trial was approximately $\frac{1}{13}$ acre for Victory and $\frac{1}{17}$ acre for each of the other four plots.

Drilling was done on February 5 and 6, 1924, in fine weather. The soil was clean and in excellent tilth. The seed rate was 3½ bushels per acre in the case of the short, Supreme and Superb, and with the remaining varieties the rate was approximately 3 bushels per acre.

The crop was ready to cut on August 20. The weather had been very unsettled; the crop was a heavy one—standing over 6 ft. high in places, and much of it was interlaced and laid. The laying, however, was not of a serious nature, and the contents of a strip was lying on the broken or bent straw of its neighbour, and the grain was usually well off the ground and could dry quickly. Cutting by binder was out of the question, but a portion of the area, representing approximately one-third of the whole, was selected as being least laid and entangled, and this was cut by scythe and bound by hand. The selected strips were approximately 40 yards long, representing $\frac{1}{120}$ acre. Nine such strips were available in the case of Victory with Abundance as control, and eight such strips in the case of the other three plots.

Even with this small proportion of the total area the crop was proportionately rich and heavy and of really good quality, and to make up for the shortness of the strips and take every advantage of the otherwise favourable considerations, it was decided to subdivide the strips into half-lengths and thereby obtain double the number of pairs of comparisons for each plot (each half-strip having an area of $\frac{1}{240}$ acre), i.e. a total area of $\frac{3}{40}$ acre for plot Victory and Abundance, and $\frac{1}{15}$ acre for each of the other four plots. The whole operation was completed in 6 days, with occasional interruption from unsettled weather, but the drying periods were very favourable, and none of the weights or crop were influenced by wet. After weighing of the contents of the $\frac{1}{240}$-acre strips the crop was then stooked on its respective plots and subdivisions and was stacked in two stacks of ten subdivisions each, the total control being in one stack and the total varieties being in the other. The contents of the subdivisions of each plot were kept separate by layers of hessian canvas sheets, and were threshed and weights of grain and straw recorded still in the form of comparisons of subdivided areas per plot.

The unsettled weather just previous to August 21 prevented the cutting of Potato before the others, and all plots were harvested in the following order with their control:

Victory, Supreme, Potato, Black Tartarian and Superb. Potato alone showed signs of over-ripeness, and there was very slight loss on this account. The crop lay in stooks in the field from August 27 to about September 3, and was then stacked and was threshed in fine weather and dry condition on September 17, weights of grain and straw being recorded as they came from the machine.

BICKERSTAFFE.—The soil was a medium light black loam, elevation about 139 ft. above sea-level. Previous cropping: 1922 Hay, 1923 Potatoes, followed by cabbages. Manures: 15 tons per acre farmyard manure was spread in the spring of 1923.

Drilling took place on March 25, 1924. There was a good tilth after rain on the 24th. The whole area was rolled the day after drilling. The seed rate was approximately 4 bushels per acre, this being slightly less than the rate selected by the farmer for his own oats. The total area drilled was approximately 3 acres, and was made up as follows:

By plots which include the variety and its control:

Superb, Black Tartarian and Victory . . $\frac{3}{5}$ acre each.
Potato and Supreme . . . . $\frac{1}{2}$ acre each.

Add to this a marginal surplus of 2 yards at either end of the strips to complete the 3 acres.

The above allowed for strips of $\frac{1}{30}$ acre to be available at harvest, but for reasons given below these were reduced to $\frac{1}{25}$ acre, disposed as follows:

Supreme	with	Abundance,	11	strips	of $\frac{1}{25}$	acre	each	=	11/25	acre
Black Tartarian	,,	,,	12	,,	,,	,,	,,	=	12/25	,,
Potato	,,	,,	10	,,	,,	,,	,,	=	10/25	,,
Supreme	,,	,,	10	,,	,,	,,	,,	=	10/25	,,
Victory	,,	,,	11	,,	,,	,,	,,	=	11/25	,,
							Total		$2\frac{4}{25}$	acres

On July 31 the whole crop was particularly clean, and promised a heavy yield and was standing well. On August 26 the following conditions prevailed:

Continuous wet weather and lack of sunshine had delayed ripening. The crop, especially Potato and Abundance, was badly laid. It was decided to cut two of the plots by scythe to prevent admixture and give greater accuracy. Cutting commenced on August 27, and the plots were taken in the following order and dates and weather conditions:

August 27 .	Black Tartarian with Abundance.	
,, 28, 29, 30	Raining.	
September 1	Potato with Abundance Superb with Abundance	cut by binder.
,, 2	Supreme with Abundance. Victory ,, ,,	 cut by binder.

The weighing of the sheaves on their comparative half-drill strips was carried out for all plots on September 3, and stacking was done in ten separate stacks with crop in good condition on September 6.

Threshing took place on October 1—weather fine. Weights of corn and straw were recorded at the time as they came from the machine, the straw being baled direct from the thresher and weighed immediately.

SPARSHOLT.—The soil was a medium light loam with flints overlying chalk which is 1 to 2 ft. below the surface, 300 ft. above sea-level. Average annual rainfall, 30 in.

Cropping 1921: Wheat—a good crop, 52 bushels per acre.
Manure: 4½ cwt. of Basic Slag; 2 cwt. of 14 per cent Kainit.
,, 1922: Wheat—an average crop, 32 bushels per acre.
Manure: 5 cwt. Super 30 per cent; 3 cwt. Kainit 14 per cent.
,, 1923: Clover ley—a very good crop folded with sheep and ploughed up first week in November.
,, 1924: Oat trial.

Drilling was done on March 11 in fine weather with excellent tilth. The soil appeared to be clean, seed rate about 3¾ bushels per acre. The total area drilled was 3¼ acres. Total area harvested for the trial was 2·9 acres, which gave 19 strips for each plot, or ·587 acre per plot. The general condition of the crop on July 8 was good and fairly clean.

On August 20 harvesting commenced. The crop had been well grown and was thick, but on account of the slope of the land the fertility of the soil seemed to affect the plots in the following order, commencing with the least fertile plot: Superb, Black Tartarian, Potato, Supreme, Victory. A binder was used for cutting purposes, and as the whole crop was in first-rate condition only, the minimum area was rejected and 19 pairs of comparisons of 62⅔ yards each = 2814 sq. yards, were harvested for the purpose of the trial on each plot. The general condition of the crop at harvest date was such that all the varieties were ready for cutting and surprisingly uniform in this respect, the grain of *all* being sufficiently ripe, although in most cases the straw was still sappy. Cutting was done on August 20 and 21, in fine dry weather and in the following order: Superb, Black Tartarian, Potato, Supreme, and Victory. On August 22 the weather broke to thunderstorms and heavy rain, and it was not considered advisable to weigh the sheaves until September 11 and 12, on which dates the sheaves were dry and in good condition, although the excessive damp had caused them to smell somewhat musty, and Victory had sprouted a little in places.

Prior to threshing pigs got into the portion of the yard in which Superb and its standard were stacked, and their depredations were such that this particular portion of the trial had to be discarded.

Order of Ripening.

The relative orders of maturity were as follows:

Babraham.	*Sparsholt.*	*Kirton.*	*Bickerstaffe.*	*Lydney.*
1. Supreme	1. Superb	1. Potato	1. Abundance	1. Abundance
2. Superb	2. Abundance	2. Abundance	2. Victory	2. Victory
3. Abundance	3. Victory	Victory	Supreme	3. Superb
Victory	4. Supreme	Supreme	Superb	4. Supreme
5. Black Tartarian	5. Black Tartarian	Superb	5. Black Tartarian	5. Potato
6. Potato	6. Potato	6. Black Tartarian (No. 6, 4 days after others)	6. Potato	6. Black Tartarian (12 days between No. 1 and No. 6.)

No explanation can be given for the early ripening of Potato at Kirton, and several other lesser discrepancies make the results difficult to interpret, but taking the averages for what they are worth it would appear that Abundance, Superb, Victory, Supreme, Potato, Black Tartarian, was something like the order of ripening in the year in question.

Lodging.

The standing capacity of the different oat varieties is an important economic factor. Notes were taken concerning this at all the stations. At Babraham no lodging took place, and at Sparsholt Potato only was slightly laid.

Kirton.	*Bickerstaffe.*	*Lydney.*
1. Black Tartarian	1. Victory	1. Victory
2. Abundance	Superb	Superb
3. Victory	3. Black Tartarian	3. Black Tartarian
Potato	Supreme	Supreme
5. Superb	5. Abundance	5. Abundance
6. Supreme	6. Potato	6. Potato

Thus, on the whole, Victory, Black Tartarian and Superb appeared less subject to lodging, on the whole, than Abundance, Supreme and Potato.

Results of Trials at the Several Stations.

In the tables given below it will be found that all the characters dealt with are given as percentages of the standard variety—Abundance. Except in the case of bushel weight, which will be dealt with specifically below, the actual average yield, percentage of husk and other characteristics of the standard variety are given as an indication of the success or failure from a farming point of view, of the trials at each station. Actual yields, thousand corn weights, etc., are merely of secondary interest, as they are dependent on quality of land, seasonal weather, manuring, etc., which differ from farm to farm and from field to field.

What the farmer wants is the comparison of varieties about which he knows nothing with a variety which is well known, and "Abundance" should satisfactorily provide such a standard of comparison.

In the tables, showing the behaviour of the varieties at the different stations, the differences which, according to the theory of chances, can be regarded as significant, are given in italics. No attempt has been made to give relative value to the different factors recorded. Yield of grain obviously comes easily first, and in most cases yield of straw last, but in the case of quality it is quite impossible to say what is the relative financial value of high bushel weight or percentage of husk, and the last three columns of the table must be taken as more or less complementary to each other.

A few notes are necessary to explain the methods which have been adopted in estimating the characters set out in the quality columns.

HUSK.

At threshing time samples were taken at each station of each variety and its control. For purposes of husk percentage determinations each sample was reduced by the quartering method (the division of the sample into four by means of a ruler, and the subsequent subdivision of one of the quarters into four and so on) until there were left just over 100 grains. Of these 100 were counted out, de-husked, and the husks and naked grains weighed separately. This was repeated five separate times with each sample, and the figures given are each the average of determinations on five separate hundreds.

BUSHEL WEIGHT.

This was determined by averaging ten different chondrometer determinations of each separate sample. Check tests comparing the chondrometer results with those obtained by using the bushel measure showed that the former were consistently low; for this reason the bushel weight of the standard is omitted from the tables. This difference should not affect the value of the determinations, since both standard and varieties under test were subjected to identical treatment.

THOUSAND CORN WEIGHT.

The quartering method was again used until samples of just over 1000 grains were obtained; these samples were weighed and then counted, and the weight of a thousand grains was calculated from that of the number found in the sample. In the case of each variety and its standard the figure given is the average of three determinations.

BABRAHAM, CAMBS., 1924

	Yield						Quality of Grain								
	Grain			Straw			Proportion of Husk			Bushel Weight			1000 Corn Weight		
	Per cent of "Abundance"	Probable Error	Order of Merit	Per cent of "Abundance"	Probable Error	Order of Merit	Per cent of "Abundance"	Probable Error of the Difference	Order of Merit	Per cent of "Abundance"	Probable Error of the Difference	Order of Merit	Per cent of "Abundance"	Probable Error of the Difference	Order of Merit
Abundance . .	100 (Av. 27·1 cwt.)	±	III	100 (Av. 1 ton 2·4 cwt.)	±	V	100 (Av. 29·4 per cent.)	±	I	100	±	III	100 (Av. 35·45 gm.)	±	
Victory . . .	106·2	2·70	I	*126·9*	2·70	III	*108·5*	2·21	IV	101·7	1·20	I	*88·4*	2·06	IV
Supreme . . .	98·0	1·42	IV	105·3	1·42	IV	*110·0*		V	96·5		IV	*91·9*		II
Potato	*96·5*	0·80	VI	*132·9*	0·80	II	102·5		II	*94·7*		V	*73·2*		VI
Black Tartarian .	102·0	1·99	II	*137·5*	1·99	I	*120·1*		VI	*83·0*		VI	*75·6*		V
Superb	97·5	1·97	V	*90·8*	1·97	VI	*107·4*		III	100·3		II	*89·0*		III

Here it will be seen that in 1924 for light land of this nature Abundance is probably on the whole the most satisfactory variety, though Victory is also indicated as a success. Black Tartarian, which also produced one of the highest yields, shows itself deficient in quality. The remainder were inferior either in yield or quality or both.

KIRTON, LINCS., 1924.

	Yield						Quality of Grain								
	Grain			Straw			Proportion of Husk			Bushel Weight			1000 Corn Weight		
	Per cent of "Abundance"	Probable Error	Order of Merit	Per cent of "Abundance"	Probable Error	Order of Merit	Per cent of "Abundance"	Probable Error of the Difference	Order of Merit	Per cent of . "Abundance"	Probable Error of the Difference	Order of Merit	Per cent of "Abundance"	Probable Error of the Difference	Order of Merit
Abundance . .	100 (Av. 27·1 cwt.)	±	I	100 (Av. 2 tons 4·0 cwt.)	±	IV	100 (Av. 25·4 per cent.)	±	II	100	±	II	100 (Av. 39·28 gm.)	±	I
Victory . . .	96·7	1·15	II	*110·4*	1·15	III	103·5	2·24	III	101·5	0·52	I	92·7	3·13	II
Supreme . . .	*76·0*	0·76	VI	*88·4*	0·76	V	*118·5*		VI	100·2		III	*79·0*		IV
Potato	*84·8*	1·11	V	*160·0*	1·11	I	97·7		I	100·2		III	*78·5*		V
Black Tartarian .	*87·6*	0·92	IV	*127·7*	0·92	II	*113·3*		IV	*91·1*		VI	*70·2*		VI
Superb	*91·6*	1·63	III	*88·0*	1·63	VI	*113·5*		V	*95·9*		V	*79·6*		III

Here again, although on deep alluvial soil, Abundance and Victory appear to compete for first place, and all things considered would seem to merit greater favour than the other varieties. Potato does well in quality, but its low yield discounts this advantage.

BICKERSTAFFE, LANCS., 1924.

	Yield						Quality of Grain								
	Grain			Straw			Proportion of Husk			Bushel Weight			1000 Corn Weight		
	Per cent of "Abundance"	Probable Error	Order of Merit	Per cent of "Abundance"	Probable Error	Order of Merit	Per cent of "Abundance"	Probable Error of the Difference	Order of Merit	Per cent of "Abundance"	Probable Error of the Difference	Order of Merit	Per cent of "Abundance"	Probable Error of the Difference	Order of Merit
Abundance . .	100 (Av. 23·4 cwt.)	±	III	100 (Av. 1 ton 16·9 cwt.)	±	IV	100 (Av. 24·2 per cent.)	±	II	100	±	IV	100 (Av. 36·31 gn.)	±	I
Victory . . .	*106·0*	0·71	I	*103·7*	0·71	II	100·8	2·15	III	100·0	0·79	IV	95·5	1·51	II
Supreme . . .	*103·5*	0·68	II	*88·0*	0·64	V	*107·0*		IV	*105·7*		I	*84·9*		IV
Potato	*82·9*	1·34	V	*120·9*	1·34	I	97·6		I	101·7		III	*78·6*		V
Black Tartarian .	*80·6*	0·60	VI	100·6	0·60	III	*117·0*		VI	*95·0*		VI	*76·8*		VI
Superb	93·0	3·04	IV	*80·4*	3·04	VI	*108·6*		V	*103·9*		II	*89·0*		III

Here Victory produced a significantly heavier yield of grain than Abundance. Supreme did the same, and these three varieties would appear superior to the remainder.

SPARSHOLT, HANTS., 1924

	Yield						Quality of Grain								
	Grain			Straw			Proportion of Husk			Bushel Weight			1000 Corn Weight		
	Per cent of "Abundance"	Probable Error	Order of Merit	Per cent of "Abundance"	Probable Error	Order of Merit	Per cent of "Abundance"	Probable Error of the Difference	Order of Merit	Per cent of "Abundance"	Probable Error of the Difference	Order of Merit	Per cent of "Abundance"	Probable Error of the Difference	Order of Merit
Abundance . .	100 (Av. 10·0 cwt.)	±	I	100 (Av. 2 tons 4·0 cwt.)	±	IV	100 (Av. 26·1 per cent.)	±	I	100	±	III	100 (Av. 37·24 gm.)	±	I
Victory . . .	100	0·69	I	*105·0*	0·69	III	103·5	1·68	II	100·5	0·61	II	*90·1*	1·45	II
Supreme . . .	*92·4*	0·70	III	*89·3*	0·70	V	*121·4*		V	100·8		I	*86·0*		III
Potato	*68·4*	0·87	V	*115·7*	0·87	II	*111·8*		III	*92·0*		V	*72·2*		V
Black Tartarian .	*72·4*	0·56	IV	*143·8*	0·56	I	*113·3*		IV	*96·4*		IV	*74·5*		IV
Superb							Destroyed								

Again in this trial Victory and Abundance are to the fore, and perhaps Abundance is slightly the better of the two. Their general superiority over other varieties is more marked here than elsewhere, though the yields throughout were light.

ALL STATIONS.

Yield of Grain, 1924.

	Babraham, Cambs.		Kirton, Lincs.		Bickerstaffe, Lancs.		Sparsholt, Hants.	
	Percent. of Abundance (with probable Error)	Order of Merit	Percent. of Abundance (with probable Error)	Order of Merit	Percent. of Abundance (with probable Error)	Order of Merit	Percent. of Abundance (with probable Error)	Order of Merit
Abundance	100	III	100	I	100	III	100	I
Victory	106·2 ± 2·70	I	96·7 ± 1·15	II	*106·0* ± 0·71	I	100 ± 0·69	I
Supreme	98·0 ± 1·42	IV	*76·0* ± 0·76	VI	*103·5* ± 0·68	II	*92·4* ± 0·70	III
Potato	*96·5* ± 0·80	VI	*84·8* ± 1·11	V	*82·9* ± 1·34	V	*68·4* ± 0·87	V
Black Tartarian . .	102·0 ± 1·99	II	*87·6* ± 0·92	IV	*80·6* ± 0·60	VI	*72·4* ± 0·56	IV
Superb	97·5 ± 1·97	V	*91·6* ± 1·63	III	93·0 ± 3·04	IV		

Spring O

ALL STATIONS.

Yield of Straw, 1924.

	Babraham, Cambs.		Kirton, Lincs.		Bickerstaffe, Lancs.		Sparsholt, Hants.	
	Per cent. of Abundance (with probable Error)	Order of Merit	Per cent. of Abundance (with probable Error)	Order of Merit	Per cent. of Abundance (with probable Error)	Order of Merit	Per cent. of Abundance (with probable Error)	Order of Merit
Abundance	100	V	100	IV	100	IV	100	IV
Victory	*126·9* ± 2·70	III	*110·4* ± 1·15	III	*103·7* ± 0·71	II	*105·0* ± 0·69	III
Supreme	105·3 ± 1·42	IV	*88·4* ± 0·76	V	*88·0* ± 0·64	V	*89·3* ± 0·70	V
Potato	*132·9* ± 0·80	II	*160·0* ± 1·11	I	*120·9* ± 1·34	I	*115·7* ± 0·87	II
Black Tartarian . .	*137·5* ± 1·99	I	*127·7* ± 0·92	II	100·6 ± 0·60	III	*143·8* ± 0·56	I
Superb	*90·8* ± 1·97	VI	*88·0* ± 1·63	VI	*80·4* ± 3·04	VI		

ALL STATIONS, 1924.

	Yield				Quality of Grain					
	Grain		Straw		Proportion of Husk		Bushel Weight		1000 Corn Weight	
	Per cent of "Abundance"	Order of Merit	Per cent of "Abundance"	Order of Merit	Per cent of "Abundance"	Order of Merit	Per cent of "Abundance"	Order of Merit	Per cent of "Abundance"	Order of Merit
Abundance	100	I	100	IV	100	I	100	III	100	I
Victory	97·8	II	111·5	III	104·1	III	100·9	I	91·7	II
Supreme	92·5	IV	92·7	V	114·2	V	100·8	II	85·5	IV
Potato	83·1	VI	132·4	I	102·4	II	97·2	V	75·6	V
Black Tartarian	84·1	V	128·8	II	115·9	VI	91·4	VI	74·3	VI
[1] Superb	94·0	III	89·8	VI	109·8	IV	100·0	III	85·9	III

[1] Average of three stations.

In the present instance it is particularly to be remarked that although the trials were well distributed over the country and were sown in soils of very different nature, almost without exception Abundance and Victory have produced the best results as far as yield of grain is concerned. Their position as regards quality is generally good, and the only character in which they fall short is the production of straw, where, almost without exception, Potato and Black Tartarian excel. The production of straw, though valuable, is of very minor importance, and is hardly like to induce farmers to grow these latter varieties in preference to the former.

It is truly remarkable that, as far as these trials go, the two most serious competitors for favour should be one of the oldest oat varieties on the market (Abundance), and a variety (Victory) bred in a foreign country, presumably with a view to satisfying foreign agricultural conditions and a climate not identical with our own.

As regards method of testing for yield, it is to be noted that the accuracy of these trials, as judged by the size of the probable error, must be considered as highly satisfactory. It is true that the series laid down at Lydney Park had to be abandoned, but the remainder, in spite of a season exceptionally favourable to "laying," were safely harvested. The average probable error for yield amounts to no more than 1·24 per cent, *i.e.* on the average, differences of 3·72 per cent or over may be considered as significant. This compares very favourably with the results of comparisons of pairs of single plots, where Wood and Stratton have estimated that if their size is over $\frac{1}{40}$ acre the probable error amounts to 7 per cent, or, nothing under a difference of 21 per cent can be considered as significant.

Although the results of these trials can only be considered as valid for the districts in which they were carried out, and for the year in question, a table showing the averages of all the stations has been compiled as it may possibly furnish some indication of the relative values of the varieties over a wider area.

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CONTEMPORARY AGRICULTURAL LAW

I.—LEGISLATION.

IN the article on "Contemporary Agricultural Law" in Vol. 84 of this Journal, on p. 200, the provisions of the Finance Act, 1923, in respect of relief from entertainments' duty in favour of certain entertainments by societies not established or conducted for profit, which would include agricultural societies, are shortly stated. These provisions have been amended by the Finance Act, 1924 (14 & 15 Geo. 5, c. 21), so as to enlarge the benefits of the exemption. Section 7 of the Act of 1924 strikes out paragraph (*b*) of Section 11 of the Act of 1923, which required the society providing the entertainment to have been established solely or partly for the purpose of promoting the interest of any industry, and substitutes for paragraph (*c*) a new paragraph (*b*) which (so far as material) enacts that the entertainment must consist solely of an exhibition "(i) of the products of an industry, or of materials, machinery, appliances, or foodstuffs used in the production of those products, or displays of skill by workers in the industry in work pertaining to the industry, or . . . . solely of such exhibitions or displays of skill, together with a performance of music by a band or an exhibition of work or displays of skill by children under the age of sixteen years or by young persons attending a school or other educational institution." Agricultural societies which confine their shows or exhibitions within the limits above set out will be entitled to escape the liability to entertainments duty. Section 23 of the same Act contains an exemption from income tax in favour of agricultural societies, exempting them from any profits or gains arising to an agricultural society from any exhibition or show held for the purposes of the society, if they are applied solely to the purposes of the society. An "agricultural society" is defined to mean in this section "any society or institution established for the purpose of promoting the interests of agriculture, horticulture, live-stock breeding or forestry."

The only other sections of the Finance Act, 1924, which call for notice here are Section 18, which entitles a holder of a licence for a mechanically propelled vehicle to surrender his licence to the county or borough council with which the vehicle is for the time being registered and to be repaid a proportionate amount of the duty paid for the licence; Section 20, which abolishes inhabited house duty; and Section 36, which exempts from stamp duty receipts given for or on account of any salary, pay or wages, or for or on account of any like payment to or for the account or benefit of an employee or for or on account of money paid in respect of any pension, superannuation allowance, compassionate allowance or other like allowance.

The Agricultural Wages (Regulation) Act, 1924 (14 & 15 Geo. 5, c. 37), is of great importance to employers of agricultural labour. It revives the powers of fixing agricultural wages given by the now repealed Corn Production Act, 1917, but the fixing of the rate is now put in the hands of agricultural wages committees established for each county and not in the central Agricultural Wages Board, as was the case under the Act of 1917. The Act of 1924 provides for the establishment by the Minister of Agriculture and Fisheries of county agricultural wages committees and a central agricultural wages board, and by Section 2 defines the powers of the committees with respect to minimum rates of wages. They must fix minimum rates for time work and may, if they think it necessary or expedient, do so also in respect of piece work. The rates may be fixed so as to apply universally to all workers employed in agriculture in the county, or to any special class of workers, or to any special area in the county, and may vary according as the employment is for the day, week, month, or other period, or according to the number of working hours, or so as to provide for a differential rate in the case of overtime. They are empowered to grant permits for employment at rates below the minimum rate of workers affected by any physical injury or mental deficiency or any infirmity due to age or to any other cause. In fixing minimum rates a committee shall "so far as practicable, secure for able-bodied men such wages as in the opinion of the committee are adequate to promote efficiency and to enable a man in an ordinary case to maintain himself and his family in accordance with such standard of comfort as may be reasonable in relation to the nature of his occupation." Before fixing, cancelling or varying any minimum rates the committee must give the prescribed notice of the proposed rate and opportunity must be given for lodging objections within a limited time and the objections lodged must be considered. By Section 3, when the committee have fixed, cancelled, or varied any minimum rate of wages, notification of their decision must be made to the Agricultural Wages Board for England and Wales, whose duty it is to make an order for carrying out their decision which will become effective from the date specified in the order. Section 4 provides for complaints as to inadequate payment for piece work when no minimum piece rate has been fixed, and empowers the committee to direct an employer to pay to the worker such additional sum by way of wages for any piece work as in their opinion represents the difference between the amount which would have been paid if the work had been done by an ordinary worker at the minimum rate for time work, and the amount actually received by the worker by whom or on whose behalf the complaint is made. Section 6 empowers the Minister to direct an agricultural wages committee to reconsider any minimum rate which has been fixed by them. Section 7 contains provisions as to penalties and legal proceedings. An employer who fails to pay wages to a worker employed by him in agriculture at a rate not less than the minimum rate is liable on summary conviction in respect of each offence to a fine not exceeding £20, and to a fine not exceeding £1 for each day on which the offence is continued after conviction. It is also provided by Sub-section 2 that in any proceedings against a person under the section it shall lie with that person to prove that he has paid wages at not less than the minimum rate—a somewhat harsh provision throwing the onus of proof that he has not been guilty of the offence charged on the person accused instead of on the accuser, according to the ordinary rule of law in other cases. Sub-section 6 is in favour of employers and enables an employer charged with an offence under the section to escape conviction if he proves that he has used due diligence to comply with the provisions of the Act and that the offence was in fact committed by his agent or some other person without his knowledge, consent or connivance. By Sub-section 10 any agreement for the payment of wages in contravention of the Act or for abstaining to exercise any right of enforcing the payment of wages in accordance with the Act is void. Section 8 empowers the Minister to make regulations on various subjects, including regulations for requiring wages committees to define the benefits or advantages (not being benefits or advantages prohibited by law) which may be reckoned as payment of wages in lieu of payment in cash, and the value at which they are to be reckoned, and for requiring wages committees to define for the purpose of any differential rate of overtime the employment which is to be treated as overtime employment. Section 15 defines "agriculture" as including dairy-farming and the use of land as grazing, meadow, or pasture land or orchard or osierland or woodland, or for market gardens or nursery ground, and "worker" as including a boy, woman and girl.

The first Schedule to the Act provides that an agricultural wages committee shall consist of members representing employers and members representing workers in agriculture in the county for which the committee act in equal proportions, of two impartial members appointed by the Minister, and of a chairman. It is also provided that the Agricultural Wages Board shall consist of members representing employers and members representing workers in agriculture in equal proportions, together with such number of members as the Minister may think fit to appoint, but so that the number of appointed members shall not exceed one-quarter of the total number of members of the Board when fully constituted. At least one member of the Board must be a woman.

The only other Act of 1924 which it is necessary to notice here is the National Health Insurance Act, 1924 (14 & 15 Geo. 5, c. 38), which is a consolidation of all previous enactments relating to National Health Insurance, commencing with the National Insurance Act, 1911, and does not contain new law.

II.—DECISIONS OF THE COURTS.

1. *Labour.*—Amongst the decisions of 1924 under the Workmen's Compensation Act, 1906, there is one relating to a farm worker. That is the case of *Wood* v. *Wood* (93 L.J.K.B., 538), where it was held that a farm worker employed by the partners in a farming business, who consisted of his two brothers and a sister, and living with two of his children in a farm-house belonging to the partnership in the occupation of two out of the three partners, is not excepted from the operation of the Workmen's Compensation Act, 1906, by Section 13 as being a "member of the employer's family dwelling in his house." He is a "workman" and the partnership being a "body of persons . . . unincorporate" is an employer within the Act and therefore where his death has been caused by accident arising out of and in the course of his employment, his dependants are entitled to compensation under the Act.

2. *Landlord and Tenant.*—The cases relating to the relations of landlord and tenant of agricultural land have been numerous and principally arise under the Agricultural Holdings Act, 1923. *The Minister of Agriculture and Fisheries* v. *Dean* (93 L.J.K.B., 374; [1924] 1 K.B., 851) related to the compensation for disturbance given by Section 12 of that Act. It was held that a tenant is bound as a condition precedent to his right to compensation for disturbance to prove that he has actually suffered some loss or incurred some expense such as is indicated in Sub-section 6 of the section upon quitting his holding on the termination of his tenancy. On proof thereof he is entitled as a minimum to the amount of one year's rent, but in the absence of such proof he does not come within the sub-section and is not entitled to compensation under the section.

In a Scottish case of *McHarg* v. *Speirs* ([1924], S.C., 272) a tenant claimed compensation for disturbance to an amount exceeding one year's rent, and the claim went to arbitration in which it was proved that the loss sustained by him was less than one year's rent, and it was held that the tenant was entitled to one year's rent and was not limited to the amount of loss actually proved, although the Act, after enumerating the items which may be considered in calculating the amount of compensation, says that "for the avoidance of disputes" the compensation is for the purposes of the Act to be computed at an amount equal to one year's rent of the holding, unless the loss and expenses incurred exceed that amount, and although it was argued that as the matter had gone to arbitration a "dispute" had not been avoided.

In another Scottish case of *Keswick* v. *Wright* ([1924] S.C., 766), where compensation for disturbance was claimed, the tenant had held a farm where the sheep stock on the farm were not bound to the farm, as is common in Scotland, and therefore to be taken over by the landlord or incoming tenant. Having taken another farm with a bound stock of sheep he sold his sheep and claimed compensation for loss upon the sale of the sheep amounting to the difference between the price realised at the sale and the "going concern" value of the stock. It was held that his claim was good, for the price realised was not conclusive of the value of the stock to the tenant and that any diminution of price caused by selling the sheep stock as he did, was a loss directly attributable to quitting the holding within the meaning of Section 12, Subsection 6.

In *Mills* v. *Rose* (68 Sol., J. 420) the claim was for compensation for disturbance, which by Section 12 of the Agricultural Holdings Act, 1923, is given when the tenancy is terminated by reason of a notice to quit given by the landlord in consequence of which the tenant quits the holding. The tenant had received notice to quit, but owing to the illness of his wife he did not quit the farmhouse at the expiry of the notice. Ejectment proceedings were brought by the landlord and judgment was obtained in default of appearance and possession was subsequently obtained. It was contended on the landlord's behalf, that the tenant did not quit the farm in consequence of the notice to quit, but in consequence of the ejectment proceedings and the County Court Judge on a case stated held that he was not entitled to compensation on that ground. The Court of Appeal held that when the tenant was ejected the ejectment was in consequence of the notice to quit, and therefore the tenant had quitted the farm in consequence of the notice to quit terminating the tenancy. He was therefore entitled to compensation for disturbance under the Act.

In *Tombs* v. *Turvey* (93 L.J.K.B., 785) the question that arose was who was the "landlord" of the holding within the meaning of the Act, and therefore liable to the claims of the tenant and entitled to counter-claim under the Act. The landlord is defined in the Act as "any person for the time being entitled to receive the rents and profits of any land." The tenancy in this case expired on September 29, 1922. In May, 1922, the then landlord contracted to sell the holding subject to the tenancy to a purchaser, completion to take place on September 29, 1922. In fact, completion took place on November 2, 1922. The contract of sale contained a condition that any rent payable on September 29 was to be deemed "current rent" and was to be payable by the purchaser on completion. It was held that the purchaser was not at the date of the termination of the tenancy the "landlord" for the purposes of the Agricultural Holdings Act, as the vendor was entitled to receive the rents and profits at that date.

Simpson v. *Batey* (93 L.J.K.B., 919; [1924] 2 K.B., 666) was an important case. Section 16 of the Agricultural Holdings Act, 1923, is very wide in its terms in referring to the arbitration of a single arbitrator questions or differences arising out of claims by the tenant of a holding against the landlord or claims by the landlord against the tenant for waste, breach of contract or otherwise, "and any other question or difference of any kind whatsoever between the landlord and the tenant of the holding arising out of the termination of the tenancy of the holding." The landlord of an agricultural holding having received from the tenant a notice to determine the tenancy brought an action of ejectment against him after his refusal to give up possession at the expiration of the notice. The tenant pleaded (1) that the landlord had waived the notice to quit, and (2) that the landlord's action was barred by Section 16 of the Act and he applied to stay the action. It was held by the Court of Appeal that the dispute between the parties as to whether the tenancy was determined by the notice to quit was not a question or difference arising out of the termination of the tenancy, and that Section 16 did not prevent the action being brought. It was also pointed out by Lord Justice Scrutton that Section 54 of the Act expressly preserved the landlord's common law rights except as destroyed by Section 16.

An Irish case of *Ferguson & Co.* v. *Ferguson* ([1924] 1 Ir.R., 22) should be noticed. The appellants were lessees of 37½ acres of land in the county of Antrim on which a factory and certain other buildings were erected. They went into liquidation and thereby incurred a forfeiture for breach of a condition in the lease. Section 2 of the Conveyancing Act, 1892, allows relief against forfeiture of a lease on bankruptcy in certain cases, but excepts from the operation of the sections any lease of "agricultural or pastoral land." The Court of Appeal in Ireland held that notwithstanding the demise of the factory and machinery, the lease was a lease of "agricultural land" and accordingly that the section did not apply to the lease.

In *Queen's Club Garden Estates, Ltd.* v. *Bignell* (93 L.J.K.B., 107; [1924] 1 K.B., 117), which is noted in the article on "Contemporary Agricultural Law" in Vol. 84 of this Journal at p. 209, it was held that in the case of a weekly tenancy a week's notice to quit is a reasonable and proper notice, and that it must be given to terminate on the last day of a week, calculated from the beginning of the tenancy. This decision has been followed in *Precious* v. *Reedie* (93 L.J.K.B., 800; [1924] 2 K.B., 149), where it was held that to determine a monthly tenancy a month's notice expiring with a month of the tenancy is required, and that a notice given for the wrong day is not a good notice for the end of the next ensuing month unless it contains saving words such as "or at the end of a month of the tenancy next after one month from the date hereof."

There have in 1924, as in previous recent years, been many decisions on the Rent Restriction Acts which do not directly affect agriculturists except possibly in respect of farm cottages let to and occupied by workers in agriculture. In this connection it may be useful to notice two cases, viz., *Williamson* v. *Pallant* (93 L.J.K.B., 726; [1924] 2 K.B., 173) and *Shrimpton* v. *Rabbits* (131 L.T., 478). By Section 8, Sub-section 1 of the Increase of Rent and Mortgage Interest (Restrictions) Act, 1920, as amended by Section 4 of the Rent and Mortgage Interest Restrictions Act, 1923, it is enacted that recovery of possession of a dwelling house to which the Act relates may be obtained if "reasonably required" by the landlord for occupation as a residence for himself or for certain other persons therein mentioned which include "some person engaged in his whole-time employment" and "the court considers it reasonable to make such an order or give such judgment." In the first-mentioned case it was held that in determining whether it is "reasonable" to make an order for the possession of a dwelling house the County Court Judge is entitled to and is bound to take into consideration every circumstance that may affect the interest of the landlord, or that of the tenant, in the premises, including the financial hardship, if any, which would be inflicted on the tenant if an order for possession were made. In the second case it was laid down that in considering whether it is "reasonable" to make an order for possession the Judge must consider the circumstances of the tenant as well as those of the landlord.

4. *Produce.* In *Stephenson* v. *Thompson* (93 L.J.K.B., 771; [1924] 2 K.B., 240) a farmer by agreement in writing sold to the defendant, another farmer, in May, 1922, the crop of potatoes planted on the farm of the former for the sum of £3,000. The sale was an out-and-out sale made bona fide for cash. Under the agreement the vendor was to cultivate and manage the crop in a good husbandlike manner, and ultimately deliver the potatoes to the defendant or his order. The vendor in the following October entered into an arrangement with his creditors, and the plaintiff was his assignee. The defendant sold the potatoes for £1,266, having expended £320 as the cost of removing the potatoes. The plaintiff claimed that the agreement for sale to the defendant was void, not having been registered as a bill of sale, and sued for £944, the value of the potatoes less the £320 cost of removal. It was held that the plaintiff was not entitled to suc-

ceed in his action as the agreement for sale was not a bill of sale within the meaning of Section 4 of the Bills of Sale Act, 1878, but came within the exception to the definition, being a "transfer of goods in the ordinary course of business of any trade or calling." The Court said that growing crops are "goods" as well as "personal chattels" within the meaning of the Act.

5. *Rates and Taxes.* In *Drughorn* v. *Moore* (93 L.J.K.B., 161 ; [1924] A.C., 53) a question arose as to the right of a tenant to deduct income tax under Schedule A from his rent. The appellant became tenant to the respondents of certain property at a peppercorn rent for the first year, and after that at an agreed rental, and by a covenant in the lease the appellant agreed to put the premises into a proper state of repair at his own expense. The appellant paid the landlord's property tax under the Income Tax Act, 1918, for the first year of his tenancy and claimed a right to deduct a proportion of the amount so paid from the first instalment of rent payable in the second year of his tenancy under Schedule A, VIII, rule 1, of the Act. It was held by the House of Lords that the deduction could only be made from the rent payable for the first year of the tenancy, and as no rent was payable for that year no deduction could be made, although the tenant had made considerable expenditure in repairs.

Back v. *Daniels* (41, Times L.R., 162) was a case in which the question was raised whether potato growers were liable to be assessed to income tax under Schedule B or Schedule D of the Income Tax Act, 1918. The respondents were potato merchants and growers and took from farmers for the season certain lands on which to grow potatoes under an agreement which provided that they should provide artificial manure and seed, and manual labour to drill and plant the same, and to take up and pit the potatoes, and to prepare them for market, and that the farmers should plough, cultivate, and work the land, cart the manure and seed to it, and provide horse labour for manuring the land, cultivating the potatoes and carting them to the railway when taken up, the respondents paying a rent for the land and remuneration for the farmer's services. The farmers and not the respondents were rated as occupiers of the land. The potatoes grown on the land were sold by the respondents, and they were assessed to income tax in the sum of £9,632 under Schedule D in respect of their profits as potato growers. They contended that they were only liable to be assessed under Schedule B in respect of the occupation of the lands at a figure based on the rental of the lands, which would come to a much smaller sum. It was held that the respondents were in occupation of the land and were assessable to income tax in respect of such occupation under Schedule B, and that the profits made by them from the sale of potatoes were not chargeable under Schedule D as profits arising from trade except possibly to the extent of a sum representing a commission on the sale of the potatoes, although they had been grown by the respondents themselves.

In *Royal Agricultural Society of England* v. *Wilson* (9 Tax Cas 62 ; 40 Times L.R., 763) the question was as to the liability of the Society for income tax on profits made from their annual show. The Society is a " charity " within the meaning of the Income Tax Acts, being carried on for educational purposes and not existing for purposes of gain, and profits made from the show are used to further the general objects of the Society. Notwithstanding these facts, it was held that the Society carries on a trade by the holding of the show and consequently is assessable to income tax on the profits (if any) under Schedule D; but see how the amendment of the law is effected by the Finance Act, 1924, as noted above.

In *Twitchin* v. *Alton Union* (22 L.G.R., 482) tithe rent-charges issuing out of certain lands in a parish were redeemed under an order of the Minister of Agriculture and Fisheries made pursuant to the Tithe Acts, 1836 to 1918, in consideration of an annuity payable by the landowner for the term of forty years. Thereupon the overseers of the parish made a supplemental valuation list, increasing the gross estimated rental and the rateable value of the lands by adding thereto the rateable value of the tithe rent-charge, and they reduced the assessments of the tithe rent-charges affected by the redemption by amounts equal to the amount by which the gross estimated rental of the lands was increased. It was held that the lands could not be re-valued by this simple process, and that the rule laid down by Section 1 of the Parochial Assessments Act, 1836, for ascertaining the rateable value must again be applied, that is to say, the rent at which the lands might reasonably be expected to let from year to year, free of all usual tenant's rates and taxes and tithe commutation rent-charge, if any, and deducting therefrom the annual cost of the repairs, insurance, and other expenses, if any, necessary to maintain them in a state to command such rent.

6. *Miscellaneous.* In *Pulling* v. *Lidbetter* (93 L.J.K.B., 542 ; [1924] 2 K.B., 114) the plaintiff was a pig-keeper who purchased from the defendants, who were bakers, the sweepings of their bakery for use as food for pigs. Four of the pigs who had been fed with these sweepings died, and it was found that this was caused by the excessive proportion of salt in the sweepings. By Section 1, Sub-section 4 of the Fertilisers and Feeding Stuffs Act, 1906, " on the sale of any article for use as food for cattle or poultry, there shall be implied a warranty by the seller that the article is suitable to be used as such." It was held that the word " article " in this sub-section must be construed in its

widest sense, and is not limited to "articles artificially prepared" or "articles sold under a name or description implying that they are prepared from any particular substance." The sub-section therefore applies to bakery sweepings sold for use as pig food, and the defendants having committed a breach of this implied warranty were held liable to the plaintiff for the loss of his pigs.

Pratt v. *Patrick* (93 L.J.K.B., 174; [1924] 1 K.B., 488) is an instructive case as to the liability of owners of vehicles whether driven by motor or horse-power. The defendant's car, owing to negligent driving, came into collision with a lorry, causing the death of the plaintiff's husband. The defendant was not himself driving, but was in the car, and it was being driven by another with his knowledge and assent. It was held that he was liable for the accident, for when the owner of a vehicle is in it while it is being driven by another to whom by a "casual delegation" he has entrusted its management, though himself retaining its control, he will be liable to third parties for damage caused by negligent driving.

In *Gayler & Pope* v. *Davies* (93 L.J.K.B., 702; [1924] 2 K.B., 75) the servants of the defendants (who were milk vendors) left a pony and van unattended in a roadway. It bolted and dashed through the window of the plaintiffs' shop and caused considerable damage, for which the plaintiffs sued. The judgment of the learned judge (McCardie, J.) contains some valuable observations on the liability of an owner of cattle (including horses) for trespasses by them. He said that as a general rule a man is liable for trespasses by his cattle, but it seemed that this rule did not apply in the case of damage done by cattle straying off a highway on which they are being lawfully driven. In such case, in addition to proof of the trespass, negligence or wilful intention must be proved. Where, however, a horse and cart unattended by the owner or his servants has dashed into premises adjoining the highway on which they lawfully were, he held there is a prima facie case of negligence for the damage caused, for which the owner will be liable.

Beaumont v. *Jeffery* (93 L.J. Ch., 532) related to the Court Rolls of a manor which had been sold by a former lord of the manor and got into the hands of a bookseller. It was held that it is not illegal for the lord of a manor to part with the Court Rolls, but that any stranger who may acquire them is placed in the same position as the lord as regards the tenants of the manor, and is under the same obligation as the lord to produce the Rolls to the tenants when reasonably required to do so.

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TABLE I.—Acreage under Crops and Grass; *and* Number *of* Live Stock *on the* 4*th June*, 1924, *and* 4*th June*, 1923, *in England and Wales.*

	England (excluding Monmouth)		Wales (including Monmouth)	
	1924	1923	1924	1923
Total Area (excluding water)	Acres 32,037,243		Acres 5,098,762	
Total Acreage under Crops and Grass (*a*)	23,071,382	23,128,176	2,805,415	2,815,085
Arable Land	10,227,726	10,451,425	700,947	729,712
Permanent Grass for Hay	3,897,304	3,767,944	604,144	588,899
,, ,, not for Hay	8,946,352	8,908,807	1,500,324	1,496,474
Rough Grazings	3,357,488	3,317,204	1,588,850	1,564,623
Wheat	1,518,188	1,703,757	26,616	36,500
Barley	1,254,452	1,261,633	59,620	65,314
Oats	1,851,827	1,782,774	186,121	194,859
Mixed Corn	115,631	98,204	18,899	18,646
Rye	58,314	72,831	328	386
Beans (*b*)	240,567	233,647	1,127	1,346
Peas (*b*)	170,442	141,004	720	411
Potatoes	428,566	442,143	23,676	24,510
Turnips and Swedes	783,394	812,565	49,070	49,450
Mangold	378,090	390,413	11,570	12,484
Cabbage for fodder, Kohl-rabi and Rape	125,846	128,944	11,325	11,028
Vetches or Tares	111,595	86,050	705	893
Lucerne	64,368	57,671	247	209
Hops	25,897	24,893	—	—
Small Fruit (*c*)	72,429	62,872	1,086	826
Orchards (*c*)	234,087	226,533	5,390	5,526
Clover and Rotation Grasses, for Hay	1,564,757	1,624,359	187,279	190,468
,, ,, ,, not for Hay	686,800	677,920	108,851	107,516
Other Crops	226,888	224,300	2,682	2,741
Bare Fallow	349,611	428,765	5,988	6,827
	No.	No.	No.	No.
Horses for Agriculture (*d*)	695,116	707,969	87,378	90,153
Stallions	3,526	4,242	1,181	1,217
Others, one year and over	147,263	167,922	29,452	33,458
Under one year	42,215	51,627	12,586	14,696
Other Horses	187,240	185,512	26,241	24,483
TOTAL HORSES	1,075,360	1,117,272	156,838	164,007
Cows in Milk	1,746,750	1,706,321	267,491	268,225
Cows in Calf	250,500	239,138	31,056	29,883
Heifers in Calf	334,333	341,041	33,072	30,189
Bulls	69,970	69,074	11,972	11,875
Others, two years and over	823,312	854,587	81,505	82,938
One year and under two	903,732	927,402	180,654	180,788
Under one year	967,084	895,288	192,898	186,243
TOTAL CATTLE	5,095,681	5,032,851	798,648	790,141
Ewes	4,354,046	3,991,509	1,639,535	1,513,736
Rams and Ram Lambs	123,651	109,972	49,926	45,484
Others, one year and over	1,798,094	1,769,741	586,109	599,487
Under one year	4,826,224	4,445,131	1,465,610	1,360,473
TOTAL SHEEP	11,102,015	10,316,353	3,741,180	3,519,180
Sows	410,961	353,040	38,061	35,505
Boars	30,446	24,640	1,820	1,584
Other Pigs	2,527,925	2,005,916	219,117	190,921
TOTAL PIGS	2,969,332	2,383,596	258,998	228,010

(*a*) Not including Rough Grazings.

(*b*) Excluding in 1923 areas grown for green fodder (4,696 acres in England and 175 acres in Wales).

(*c*) Including Small Fruit in Orchards; in 1924 the acreage under this heading in England amounted to 34,023 acres and in Wales to 353 acres.

(*d*) Including Mares kept for breeding.

TABLE II.—Total Produce, Acreage, and Yield per Acre
(*a*) *in* 1924 *and* 1923, *with the Averag*

Crops	Total Produce		Acreage		Yield per Acre		Average of the Ten Years
	1924	1923	1924	1923	1924	1923	1914–1923
WHEAT.	Tons	Tons	Acres	Acres	Cwt.	Cwt.	Cwt.
*England . . .	1,344,000	1,494,000	1,518,148	1,703,706	17·7	17·5	17·2
†Wales . . .	19,000	28,000	26,616	36,500	14·3	15·0	15·1
Scotland. . . .	49,000	64,000	49,449	58,789	19·8	21·8	21·5
GREAT BRITAIN	1,412,000	1,586,000	*c* 1,594,213	*c* 1,798,995	17·7	17·6	17·3
Ireland . . .	28,000	34,000	32,488	38,761	17·0	17·6	19·0
GREAT BRITAIN AND IRELAND	1,440,000	1,620,000	1,626,701	1,837,756	17·7	17·6	17·4
BARLEY							
*England . . .	977,000	924,000	1,254,433	1,261,491	15·6	14·6	[14·7
†Wales . . .	37,000	41,000	59,593	65,309	12·3	12·6	13·5
Scotland . .	129,000	134,000	151,588	158,657	17·1	16·9	17·1
GREAT BRITAIN	1,143,000	1,099,000	*d* 1,465,614	*d* 1,485,457	15·6	14·8	14·9
Ireland . . .	132,000	121,000	166,033	153,458	15·8	15·8	17·7‖
GREAT BRITAIN AND IRELAND	1,275,000	1,220,000	1,631,647	1,638,915	15·6	14·9	15·2
OATS.							
*England . . .	1,401,000	1,254,000	1,851,098	1,781,605	15·1	14·1	13·5
†Wales . . .	98,000	99,000	185,999	194,697	10·5	10·2	11·3
Scotland . .	701,000	672,000	955,535	968,211	14·7	13·9	14·4
GREAT BRITAIN	2,200,000	2,025,000	*e* 2,992,632	*e* 2,944,513	14·7	13·8	13·6
Ireland . . .	796,000	778,000	1,089,216	1,137,485	14·6	13·7	16·2
GREAT BRITAIN AND IRELAND	2,996,000	2,803,000	4,081,848	4,081,998	14·7	13·7	14·3
BEANS.							
*England . . .	186,500	188,400	226,727	222,298	16·4	17·0	15·5
†Wales . . .	680	940	880	1,079	15·5	17·4	15·5
Scotland . .	3,500	3,200	3,732	3,803	18·7	17·0	19·3
GREAT BRITAIN	190,680	192,540	(*f*) 231,339	(*f*) 227,180	16·5	17·0	15·6
Ireland . . .	(*i*)	(*i*)	(*i*)	(*i*)	(*i*)	(*i*)	23·4
GREAT BRITAIN AND IRELAND	(*i*)	(*i*)	(*i*)	(*i*)	(*i*)	(*i*)	15·8
PEAS.							
*England . . .	80,100	67,500	108,099	94,512	14·8	14·3	13·4
†Wales . . .	100	90	202	166	8·9	10·5	11·5
Scotland . .	23	16	57	31	8·3	10·1	11·6
GREAT BRITAIN	80,223	67,606	(*f*) 108,358	(*f*) 94,709	14·8	14·3	13·4
Ireland . . .	(*i*)	(*i*)	(*i*)	(*i*)	(*i*)	(*i*)	|16·2‖
GREAT BRITAIN AND IRELAND.	(*i*)	(*i*)	(*i*)	(*i*)	(*i*)	(*i*)	13·5‖

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* Excluding Monmouth. † Including Monmouth.

(*a*) The particulars for Ireland have been furnished by the Department of Lands and Agriculture for the Irish Free State and by the Ministry of Agriculture for the Government of Northern Ireland, and those for Scotland by the Board of Agriculture for Scotland.

(*b*) Including Bere.

(*c*) Exclusive of a certain area (amounting in 1924 to 40 acres), the produce of which was cut green.

(*d*) Exclusive of a certain area (amounting in 1924 to 46 acres), the produce of which was cut green.

(*e*) Exclusive of a certain area (amounting in 1924 to 851 acres), the produce of which was cut green.

(*f*) Exclusive of a certain area (amounting in 1924 to 14,087 acres of beans and 63,303 acres of peas), the produce of which was cut or picked green.

each of the Principal Crops *in* Great Britain and Ireland *of the Ten Years* 1914–1923.

Crops	Total Produce		Acreage		Yield per Acre		Average of the Ten Years 1914–1923
	1924	1923	1924	1923	1924	1923	
POTATOES.	Tons	Tons	Acres	Acres	Tons	Tons	Tons
*England . . .	2,590,000	2,642,000	428,566	442,143	6·0	6·0	6·2
†Wales . . .	106,000	116,000	23,676	24,510	4·5	4·7	5·4
Scotland . .	845,000	821,000	138,281	136,976	6·1	6·0	6·6
GREAT BRITAIN	3,541,000	3,579,000	590,523	603,629	6·0	5·9	6·2
Ireland . . .	2,286,000	2,363,000	540,612	553,958	4·2	4·3	5·1
GREAT BRITAIN AND IRELAND	5,827,000	5,942,000	1,131,135	1,157,587	5·2	5·1	5·7
TURNIPS AND SWEDES.							
*England . . .	10,038,000	10,226,000	781,825	808,763	14·0	12·6	12·3
†Wales . . .	600,000	638,000	49,070	49,450	12·2	13·2	14·0
Scotland . .	6,752,000	6,561,000	405,693	409,642	16·6	16·0	16·5
GREAT BRITAIN	18,290,000	17,440,000	*g* 1,236,588	*g* 1,267,855	14·8	13·8	13·7
Ireland . . .	3,152,000	3,664,000	252,552	247,459	12·5	14·8	16·1
GREAT BRITAIN AND IRELAND	21,442,000	21,104,000	1,489,140	1,515,314	14·4	13·9	14·1
MANGOLDS.							
*England . . .	7,650,000	6,743,000	376,478	388,974	20·3	17·3	18·9
†Wales . . .	173,000	201,000	11,570	12,484	14·0	16·1	17·6
Scotland . .	22,700	25,200	1,316	1,631	17·2	15·4	19·0
GREAT BRITAIN	7,845,700	6,969,200	(*h*)389,364	(*h*) 403,089	20·2	17·3	18·9
Ireland . . .	899,700	1,134,000	76,350	78,216	11·8	14·5	18·7
GREAT BRITAIN AND IRELAND	8,745,400	8,103,200	465,714	481,305	18·8	16·8	18·9
HAY *from* CLOVER, SAINFOIN, &C.					cwt.	cwt.	cwt.
*England . . .	2,542,000	2,579,000	1,564,757	1,624,359	32·5	31·8	28·4
†Wales . . .	245,000	248,000	187,279	190,468	26·2	26·1	24·8
Scotland . .	720,000	657,000	415,322	414,527	34·7	31·7	30·7
GREAT BRITAIN	3,507,000	3,484,000	2,167,358	2,229,354	32·4	31·3	28·6
Ireland . . .	(*i*)	(*i*)	(‡)	(‡)	(*i*)	(*i*)	35·7‖
GREAT BRITAIN AND IRELAND	(*i*)	(*i*)	(‡)	(‡)	(*i*)	(*i*)	31·8‖
HAY *from* PERMANENT GRASS.							
*England . . .	4,592,000	4,284,000	3,807,304	3,767,944	23·6	22·7	20·8
†Wales . . .	620,000	506,000	604,144	588,899	20·5	20·2	19·4
Scotland . .	254,000	233,000	154,765	152,857	32·8	30·5	30·3
GREAT BRITAIN	5,466,000	5,113,000	4,656,213	4,509,700	23·5	22·7	21·0
Ireland . . .	(*i*)	(*i*)	(‡)	(‡)	(*i*)	(*i*)	40·9‖
GREAT BRITAIN AND IRELAND	(*i*)	(*i*)	(‡)	(‡)	(*i*)	(*i*)	26·5‖
HOPS. (*j*)							
England . .	444,000	229,000	25,897	24,893	17·1	9·2	10·7

(*g*) Exclusive of a certain area (amounting in 1924 to 1,569 acres), on which the crops were grown for the production of seed.

(*h*) Exclusive of a certain area (amounting in 1924 to 1,612 acres), on which the crops were grown for the production of seed.

(*i*) Figures not available.

(*j*) No Hops are grown in any other part of Great Britain and Ireland.

No separate figures available. The total area under Beans and Peas in Ireland in 1924 was 1,096 acres, as against 1,212 acres in 1923.

‡ No separate figures available. The total area under Hay in Ireland in 1924 was 2,571,936 acres as against 2,487,688 acres in 1923. The total production of Hay in 1924 was 5,257,000 tons and in 1923, 4,407,000 tons.

‖ Average of five years only.

TABLE III.—Hops:—*Total Produce, Acreage, and Yield per Acre, in* 1924 *and* 1923, *in each County of England in which* Hops *were grown; and the Average Yield of the Ten Years* 1914–1923.

COUNTIES, &c.	Estimated Total Produce		Acreage returned on June 4		Estimated Average Yield per Acre		Average of the Ten Years 1914–23
	1924	1923	1924	1923	1924	1923	
TOTAL FOR ENGLAND	444,000	229,000	25,897	24,893	17·1	9·2	10·7
	Cwt.	Cwt.	Acres	Acres	Cwt.	Cwt.	Cwt.
Kent — East . . .	70,000	37,000	3,659	3,535	19·2	10·5	11·5
Kent — Mid	109,000	56,000	5,411	5,204	20·2	10·7	12·2
Kent — Weald . . .	125,000	60,000	6,897	6,719	18·1	8·9	10·8
Total Kent. .	304,000	153,000	15,967	15,458	19·1	9·9	11·5
Hants	16,000	7,900	1,037	1,018	15·2	7·8	10·0
Surrey	4,200	1,700	216	209	19·5	8·1	8·5
Sussex, East . . .	42,100	18,000	2,306	2,189	18·3	8·2	10·1
Sussex, West . . .	1,500	400	83	77	17·6	5·9	10·6
Gloucester . . .	100	100	11	11	10·9	8·7	—
Hereford	50,000	29,800	4,101	3,892	12·3	7·7	8·7
Salop	800	500	72	76	10·1	7·2	7·1
Worcester	25,000	18,000	2,080	1,951	11·9	9·3	9·3
Berkshire	300	80	24	12	13·0	6·9	—

TABLE IV.—*Average* Price of British Corn *per cwt.* (*of* 112 *Imperial standard lbs.*)* *in England and Wales, as ascertained under the Corn Returns Act,* 1882, *and the Corn Sales Act,* 1921, *in each Week of the Year* 1924.

1924 Received in the Week Ended		Wheat	Barley	Oats
		s. d.	*s. d.*	*s. d.*
January	5	9 8	10 5	9 4
,,	12	9 8	10 8	9 3
,,	19	9 11	10 11	9 6
,,	26	10 1	11 1	9 8
February	2	10 4	11 4	9 10
,,	9	10 7	11 6	9 11
,,	16	10 10	11 9	10 2
,,	23	11 0	11 9	10 2
March	1	11 0	11 9	10 1
,,	8	11 1	11 7	9 11
,,	15	10 10	11 8	10 0
,,	22	10 9	11 2	9 9
,,	29	10 7	11 7	9 7
April	5	10 6	11 3	9 7
,,	12	10 6	11 4	9 6
,,	19	10 7	11 5	9 7
,,	26	10 8	11 4	9 8
May	3	10 9	11 3	9 8
,,	10	10 10	11 3	9 7
,,	17	10 11	11 5	9 9
,,	24	11 1	11 1	9 10
,,	31	11 2	11 0	9 10

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* Section 8 of the Corn Returns Act, 1882, as amended by section (2) of the Corn Sales Act, 1921, provides that in the weekly summary of quantities and prices each sort of British Corn shall be computed with reference to the hundredweight of one hundred and twelve imperial standard pounds.

TABLE IV—*continued.*

1924 Received in the Week Ended		Wheat		Barley		Oats	
		s.	*d.*	*s.*	*d.*	*s.*	*d.*
June	7	11	3	11	1	10	0
„	14	11	3	11	3	9	11
„	21	11	3	11	1	9	10
„	28	11	5	10	8	10	0
July	5	11	9	10	11	10	3
„	12	11	10	10	9	9	10
„	19	12	0	12	3	9	6
„	26	12	3	11	10	10	0
August	2	12	9	11	9	10	2
„	9	13	1	12	5	10	3
„	16	12	11	13	2	9	7
„	23	12	11	14	3	9	3
„	30	12	2	14	8	9	1
September	6	12	3	16	3	9	1
„	13	12	1	17	5	9	3
„	20	12	0	17	7	9	5
„	27	12	1	18	0	9	8
October	4	12	1	17	6	9	9
„	11	12	3	17	3	10	1
„	18	12	8	17	2	10	4
„	25	13	0	17	3	10	7
November	1	13	0	17	0	10	6
„	8	12	9	16	9	10	4
„	15	12	6	15	11	10	2
„	22	12	6	15	7	10	0
„	29	12	6	15	6	9	10
December	6	12	5	14	11	9	9
„	13	12	3	14	5	9	8
„	20	12	2	14	4	9	6
„	27	12	2	14	5	9	6
Average for the Year		11/6		13/1		9/9	

TABLE V.—Annual Average Prices *per cwt.* (*of* 112 *Imperial standard lbs.*) *of* British Wheat, Barley, and Oats, *in England and Wales, in each year from* 1915 *to* 1924, *as ascertained under the Corn Returns Act,* 1882, *and the Corn Sales Act,* 1921; *with the* Value *of* £100 *of* Tithe Rent-Charge, *based on the Septennial Average Prices.*

Year	Annual Average Price per cwt.						Value of Tithe Rent-Charge of £100		
	Wheat		Barley		Oats				
	s.	*d.*	*s.*	*d.*	*s.*	*d.*	£	*s.*	*d.*
1915	12	4	10	5	10	10	83	2	6¾
1916	13	7	15	0	12	0	92	1	0¼
1917	17	8	18	1	17	11	*109	3	11
1918	17	0	16	6	17	9			
1919	17	0	21	2	18	9			
1920	18	10	25	0	20	5			
1921	16	8	14	7	12	3			
1922	11	2	11	2	10	5			
1923	9	10	9	5	9	7			
1924	11	6	13	1	9	9			

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* The Tithe Act, 1918, fixes the value of Tithe Rent-Charge, up to the year 1925 inclusive, at the sum payable in 1918, i.e. the value based on the septennial averages for the period ended 1917.

TABLE VI.—Monthly *Average* Prices *of* Fat Stock *and* Milking Cows *in England and Wales during the Year* 1924.

Description	Quality.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
		Per cwt. live weight												
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
FAT CATTLE: Shorthorns	1	61 7	59 7	60 3	61 0	62 0	65 1	61 10	59 7	57 4	56 0	56 1	59 3	60 0
	2	53 9	53 3	54 0	54 9	55 6	58 4	55 6	53 11	51 6	48 11	48 8	51 1	53 3
Herefords .	1	61 0	59 4	60 0	60 6	62 3	63 6	61 9	60 7	58 10	55 5	56 2	56 8	59 8
	2	54 0	52 9	54 4	54 6	56 5	56 3	53 11	53 0	53 2	48 7	49 1	51 3	53 1
Devons .	1	62 0	60 0	59 6	60 5	59 5	61 5	59 4	55 6	54 6	53 2	54 9	59 9	58 4
	2	49 0	48 9	48 7	50 11	53 3	53 10	51 4	48 9	46 0	44 5	45 6	52 4	49 5
Fat Cows .	1	45 6	45 3	45 5	46 3	46 10	48 10	46 8	44 6	43 6	42 2	43 2	45 0	45 3
	2	37 10	38 5	38 4	38 7	39 0	41 3	39 7	38 7	37 1	35 2	35 10	37 9	38 1
		Per stone dead weight												
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Shorthorns	1	13 7	13 9	13 8	13 10	14 2	14 4	14 1	13 8	13 4	13 0	13 0	13 1	13 7
	2	11 11	12 2	12 2	12 2	12 5	12 8	12 6	12 2	11 10	11 5	11 4	11 4	12 0
Herefords .	1	13 5	14 0	—	—	—	—	13 11	13 8	13 2	12 11	12 4	12 5	13 3
	2	12 6	—	—	—	—	—	—	13 1	12 11	12 1	11 10	11 8	12 4
Devons .	1	14 2	13 11	13 10	14 0	14 4	14 5	13 11	13 11	13 5	13 1	13 2	13 10	13 10
	2	12 5	11 10	11 10	12 1	12 5	12 5	12 1	12 4	12 0	11 5	11 8	12 6	12 2
Fat Cows .	1	9 11	10 1	10 3	10 3	10 8	10 9	10 4	10 0	10 0	9 10	9 11	10 0	10 2
	2	7 10	8 2	8 5	8 6	8 11	9 0	8 8	8 5	8 5	8 3	8 3	8 3	8 5
		Per head												
		£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.
MILKING COWS Shorthorns for Milk.	1	35 10	34 19	37 4	36 11	35 15	35 7	35 10	35 16	36 16	38 4	38 5	37 6	36 9
	2	27 11	26 13	29 10	29 10	28 10	28 13	27 16	28 15	29 7	30 12	30 12	29 16	28 19
Calves . .	1	30 19	31 2	33 7	31 18	32 2	33 0	32 15	33 5	34 14	35 10	34 9	33 19	33 2
	2	25 8	24 13	28 2	27 18	27 0	27 9	26 14	27 14	28 13	28 17	28 5	27 6	27 7
		Per lb.												
		d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.
VEAL CALVES	1	13¼	13¾	14	14¾	14½	13¾	14	14	13½	13	13¼	13¼	13¾
	2	11	11¾	12	12½	11	12	12	12	11¾	11	11	11	11½
FAT SHEEP: Downs .	1	16¾	16¾	16	17	17	16½	16¾	17	17	16¾	17	17¾	16¾
	2	14¼	14½	14½	15	15	14¾	15	15	15	14¾	14¾	15½	14¾
Longwools	1	16	16¼	15½	15¼	15½	15½	15¾	16	15¾	15½	15¾	16¼	15¾
	2	13½	13½	12¾	13	13	13½	13½	13¾	13¾	13	13½	14	13½
Crossbreds	1	16¾	16¾	16½	16½	16½	16½	16¾	16¾	16¾	16½	16½	17½	16¾
	2	14½	14½	14	14¾	14½	14½	14¾	14¾	14½	14¾	14¾	15½	14½
		Per stone dead weight												
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
FAT PIGS: Bacon Pigs	1	10 1	9 11	9 11	10 2	10 0	9 11	10 3	10 8	11 0	11 0	11 5	11 6	10 6
	2	9 0	8 10	8 10	9 1	8 11	8 10	9 1	9 6	9 11	9 10	10 3	10 5	9 4
Porkers .	1	12 0	11 6	11 5	11 6	10 11	10 7	10 6	11 0	11 6	11 9	12 4	12 6	11 5
	2	10 10	10 3	10 2	10 4	9 9	9 6	9 6	10 0	10 5	10 8	11 2	11 5	10 4

TABLE VII.—Yearly *Average* Prices *of* Fat Stock *and* Milking Cows *in England and Wales during the Years* 1915–1924.

Description	Quality	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924
		Per stone dead weight									
FAT CATTLE:		*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*
Shorthorns . . .	1	11 9	13 8	17 9	16 8	18 4	21 9	19 10	14 9	13 6	13 7
	2	10 9	12 6	16 3	16 8	18 4	20 9	18 0	12 10	11 11	12 0
Herefords . . .	1	11 10	13 9	17 7	16 8	18 4	21 9	19 8	14 3	13 3	13 3
	2	10 8	12 7	16 3	16 8	18 4	21 1	—	12 10	11 9	12 4
Devons	1	11 11	13 7	17 6	16 8	18 4	21 10	20 4	15 0	13 9	13 10
	2	10 10	12 1	16 0	16 8	18 4	21 3	18 10	13 5	12 4	12 2
		Per head									
MILKING COWS:		£ *s.*	£ *s.*	£ *s.*	£ *s.*	£ *s.*	£ *s.*	£ *s.*	£ *s.*	£ *s.*	£ *s.*
Shorthorns:											
Shorthorns in milk .	1	26 6	34 5	45 3	53 15	52 11	61 6	54 13	39 3	36 6	36 9
	2	21 14	27 10	35 14	41 16	39 3	48 9	41 19	30 8	28 8	28 19
Calves	1	24 18	32 19	42 2	48 17	47 14	58 1	50 19	35 15	33 8	33 2
	2	20 15	26 13	33 15	38 19	36 8	45 7	40 5	28 12	26 5	27 7
		Per lb.									
		d.	*d.*	*d.*	*d.*	*d.*	*d.*	*d.*	*d.*	*d.*	*d.*
VEAL CALVES . . .	1	10½	12¼	16	15¼	13¾	21	18	14½	13¾	13¾
	2	9½	11	14½	13½	11¾	18	15½	11¾	11½	11½
FAT SHEEP:											
Downs	1	11	13½	16½	15¾	17	23	19½	18¼	16¾	16¾
	2	10	12	15	15¾	17	21¾	17	15¾	14¾	14¾
Longwools . . .	1	10½	12¼	15½	15¾	17½	22¼	18	16¾	15½	15¾
	2	9½	11¾	14¾	15¾	17½	21½	15¼	14½	13¾	13½
Crossbreds . . .	1	11	13½	16½	16	17½	22¾	19¾	17¾	16¾	16¾
	2	10	12	15	15¾	17¼	21½	17¼	15¼	14½	14½
		Per stone dead weight									
FAT PIGS:		*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*
Bacon Pigs . . .	1	9 7	12 4	16 7	19 0	21 2	24 8	17 0	14 0	12 3	10 6
	2	9 0	11 7	15 9	19 0	21 2	23 3	15 5	12 7	11 0	9 4
Porkers	1	10 0	13 2	17 2	19 0	21 2	25 10	18 10	15 7	13 10	11 5
	2	9 6	12 6	16 5	19 0	21 2	24 2	17 4	14 3	12 8	10 4

TABLE VIII.—*Quantities and Declared Values of* **Imports** *of the principal* **Agricultural Commodities** *into the United Kingdom in* 1923 *and* 1924, *with the Average for the Years* 1911 *to* 1913.

Commodities	Quantities			Values		
	Annual Average, 1911–13	1923*	1924†	Annual Average, 1911–13	1923*	1924†
Grain and Meal.	Tons	Tons	Tons	£	£	£
Wheat	5,225,307	5,023,346	5,913,776	43,068,074	53,567,868	69,603,138
Wheat Meal and Flour	538,713	585,923	552,854	5,714,439	8,207,956	8,333,898
Barley	1,118,516	906,464	1,087,258	8,071,609	7,830,004	12,149,929
Oats	912,268	487,953	524,567	5,800,459	4,143,239	4,414,131
Oatmeal (including Groats and Rolled Oats)	42,285	42,665	45,332	602,913	803,187	909,142
Peas	112,485	98,848	89,163	1,103,733	1,848,649	1,603,269
Beans (other than Haricot)	63,771	32,810	81,218‡	471,456	396,620	991,096
Maize	2,193,910	1,724,482	1,889,080	12,692,064	14,251,849	17,060,393
Maize Meal	29,099	76,264	86,758	215,885	688,297	920,644
Meat.						
Beef	443,953	690,732	681,504	15,964,027	31,965,373	32,017,481
Mutton and Lamb	267,924	298,245	260,762	10,331,026	23,135,235	20,104,481
Pork (including Bacon and Hams)	317,011	541,663	527,432	19,781,848	52,246,043	49,815,706
Unenumerated (including Rabbits)	74,928	25,270	39,374	3,034,851	1,757,829	2,657,682
Total Dead Meat	1,103,816	1,555,910	1,509,072	49,112,752	109,104,480	104,595,300
Butter	207,448	254,776	264,638	24,679,478	44,234,534	49,699,468
Cheese	115,912	141,927	144,473	7,196,490	15,260,707	13,571,548
Milk, Condensed	60,498	112,883	110,882	2,141,134	6,240,326	5,745,844
	Gt. Hunds.	Gt. Hunds.	Gt. Hunds.			
Eggs	19,907,633	20,045,943	20,317,653	8,620,894	13,816,896	15,504,314

* Revised figures. † Subject to revision. ‡ Including Haricot beans.

Note.—From April 1, 1923, the figures include the trade of Great Britain and Northern Ireland with the Irish Free State, and exclude the direct foreign trade of the Irish Free State.

NOTES, COMMUNICATIONS AND REVIEWS.

DR. G. D. LIVEING, F.R.S.

George Dowing Liveing, Sc.D., F.R.S., died in Cambridge at Christmas, having survived his 97th birthday by a few days. He came of a seafaring and landowning family who possessed estates near the Suffolk coast in Constable's Country. Having taken a high place in Mathematics he was elected a Fellow of St. John's College and appointed lecturer in Chemistry more than seventy years ago. He at once visited Germany to work with Liebig, in whose laboratory he met the late Sir Henry Gilbert of Rothamsted, with whom he kept up a life-long friendship. Soon after his return he was appointed Professor of Chemistry in the University, an office which he continued to hold until his resignation in 1907. Very soon after his appointment he succeeded in persuading the University to build for him a Chemical Laboratory, the first building in Cambridge for the study of experimental science. His original laboratory was pulled down thirty-five years ago and replaced by the present magnificent building, which houses about a thousand students. And around it are laboratories for every branch of science, including even an experimental cold store.

Dr. Liveing was a man of wide interests. As a chemist he was perhaps best known for his work on spectroscopy in conjunction with Sir James Dewar, but he also took an active part in the public work of the university, the town and the county. For many years he was on the Council of the Senate and private correspondent of the Chancellor—the late Duke of Devonshire. He also sat with great regularity on the magisterial bench and presided over the Prison Committee. After resigning his Professorship he was elected President of St. John's College and up to the day of the accident which caused his death he was to be seen almost every evening walking slowly to College to preside at dinner in the College Hall.

But perhaps the characteristic which will be of most interest to members of the Society was his persistence in establishing agriculture as a subject of study in the University. When the "whisky money" was first given to the County Councils for technical instruction, Mr. Chaplin, the then President of the Board of Agriculture, wrote to the Chancellor of the University—the late Duke of Devonshire—suggesting that the University should establish a Department of Agriculture. The Chancellor sent on the letter to Professor Liveing, who, being a landowner himself, took up the suggestion with alacrity and prevailed upon the University to appoint a syndicate to consider the question. Lack of funds, however, prevented any formal action. Professor Liveing then took the law into his own hands, and having collected an informal Committee which included Sir Michael Foster, Professor McKenny Hughes, and Dr. Albert Pell, who have all passed away, made a start in the basement of his new laboratory in January, 1893. It was a modest start indeed, seven students sent by neighbouring County Councils who guaranteed a small income which was backed by an equally small grant from the Board of Agriculture, but Professor Liveing as Secretary and Treasurer of the Committee stuck to his idea, and the success which came at last, in the shape of the present School of Agriculture, is in great measure the direct outcome of his faith and perseverance.

Dr. Liveing was elected an Honorary Member of the Society on March 7, 1894, a year in which the Society held its Summer Meeting at Cambridge, as some recognition of his eminent position in the world of science.

T. B. W.

MR. E. J. POWELL.

The death of Mr. E. J. Powell, a few days after his last public appearance at the Show of the Smithfield Club in December, 1924, was an event of more than ordinary significance. The interval of only a few hours since the severance of his connection with the Smithfield Club as its Secretary, and since his presence at the general meeting of the Club, was indicative of the almost excessive devotion to duty which characterised a long and distinguished public career; but the death of Mr. Powell also removed a conspicuous, if not the last, link in secretarial offices with the days of H. M. Jenkins.

Born in Yorkshire in 1853, Mr. Edwin James Powell attached himself to agricultural or live-stock interests at an early age. His first appointment, as was appropriate for one who was to become so prominently and intimately associated with the great breed of Shorthorn cattle, was at Duncombe Park. The Earl of Feversham already owned there a noted herd of Bates Shorthorns, and, presumably, it was during the five years he was in the Duncombe Park Estate Office, that Mr. Powell formed the admiration and love of the Shorthorn that the future was to make so valuable an asset for himself and for the breed. It is probable, also, that it was while at Duncombe that he attracted the attention of Mr. Henry Strafford, with whom he was soon, at about the age of twenty, collaborating in the compilation and publishing of Coates's Herd Book, at that time the property of the famous auctioneer. Mr. Powell's connection with Coates's Herd Book, therefore, was older than that of the Society itself, and when regard is had to the vital work he did for the registration of live stock in general, and Shorthorn cattle in particular, it is easy to understand and sympathise with the reluctance he showed in his maturer years to delegate to younger colleagues the preparation of the portly volume into which the herd book had grown. For fifty years Coates's Herd Book had been Mr. Powell's close companion, and he lived to make the register as complete and as accurate as possible. The intimate connection with the Herd Book was broken only when advancing age compelled him to relinquish the duties of Secretary to the Shorthorn Society in 1920. Into his well-earned retirement he carried the respect and gratitude in very generous measure of Council and Members.

The lighter duties of the Smithfield Club he continued to perform, as has been stated, till within a day or two of his death, and at his final meeting with the Council and Members of that Institution there were the same manifestations of regret and appreciation as had marked his departure from the Shorthorn Society.

Having served as a trustworthy second to Mr. H. J. Hine in the secretaryship of both the Shorthorn Society and the Smithfield Club, Mr. Powell succeeded to both offices on his senior's death in 1888. In his hands the high traditions he inherited were fully and efficiently maintained.

In his private life Mr. Powell was as faithful and as lovable as he was in his public career. It was a privilege and a delight to know him out of office as well as in it, and it is not only 12 Hanover Square, and members of the Shorthorn Society and the Smithfield Club, who will lament his passing, but also all who had the advantage of his acquaintance in private life. Mr. Powell, who was elected an Honorary Member of the Society in 1920 in recognition of his good work for agriculture, is survived by his widow and a son and daughter.

C. J. B. M.

SENHOR ALFREDO CARLOS LE COCQ.

The death has been announced of Senhor Alfredo Carlos le Cocq. He was for many years Director of the Department of Agriculture, at Lisbon, and was elected an Honorary Member of the Society on July 29, 1903, following a state visit to Portugal by His Majesty the late King Edward VII, and in pursuance of a desire of the Council to associate with the Society the leading permanent officials connected with agricultural administration in various countries.

The Frozen Meat Trade.—The Annual Report of Messrs. Weddel & Co. on the frozen meat trade for the year 1924 discloses some remarkable facts which must tend to operate to the detriment of consumers of imported meat in the United Kingdom, though they may prove of advantage to those engaged in the production of home-grown meat.

Till recently Great Britain was the market for by far the greater bulk of the meat exported from the big cattle-raising countries and no other nation entered into serious competition with her for the large supplies of frozen meat sent to the Old World from the cattle ranches overseas. The consumer in the United Kingdom was in a very favoured position. The production of cattle overseas had increased out of all proportion to the consuming power, and as the greater part of the exportable surplus found its way to this country there were abundant supplies and consequently low prices ruled. During 1924, however, the position has undergone a vital change. As was to be expected, cattle prices have risen since, in accordance with the law of supply and demand, world production has been retarded till world consumption can once more keep pace with it; but a new factor has arisen in that the United Kingdom is no longer without rival in the world's meat market. Many European countries have now entered the arena and compete with this country for supplies of meat, and in 1924 the imports of frozen beef into the Continent were equal to 70 per cent. of those of the United Kingdom. France, Belgium, Italy and Germany were the principal meat importing countries on the Continent, though the imports of Holland showed a heavy increase. The United Kingdom was the only European country in which imports of frozen meat in 1924 show a decrease, not an increase, as compared with those of previous years.

The new situation which is thus arising augurs well for the cattle-raising industry both at home and overseas.

Imperial Forestry Institute.—The Imperial Forestry Institute, which has been established at Oxford to give post-graduate instruction and to carry out research work in forestry, started work on October 13, temporary accommodation having been provided in the School of Forestry building until arrangements can be completed for the erection of new buildings on another site. The Board of Governors of the Institute is now fully constituted and consists of the following:—

Lord Clinton, Forestry Commissioner (Chairman);
The Vice-Chancellor of Oxford University, Mr. J. Wells, M.A., Warden of Wadham College;
The President of Magdalen, Sir Herbert Warren, K.C.V.O., M.A., Hon. D.C.L.;
Professor W. G. S. Adams, Fellow of All Souls College;
Mr. R. L. Robinson, O.B.E., Forestry Commissioner;
Major R. D. Furse, D.S.O., Colonial Office;
Colonel G. L. Courthope, M.P., Empire Forestry Association;
Professor R. S. Troup, C.I.E., M.A., D.Sc., Director.

The following Staff has already been appointed: Director, Professor R. S. Troup, C.I.E., M.A., D.Sc.; Secretary, Mr. P. S. Spokes, B.Sc., M.A.; Lecturers—Economics of Forestry, Mr. W. E. Hiley, M.A.; Silviculture, Mr. H. G. Champion, M.A.; Mycology, Mr. W. R. Day, B.A., B.Sc.; Structure and Properties of Wood, Mr. L. Chalk, B.A. Other posts have yet to be filled. The Institute will, in addition, have the assistance of the following members of the Staff of the School of Forestry: Forest Management, Mr. R. Bourne, M.A.; Surveying and Engineering, Mr. N. F. MacKenzie, Hon. M.A. The Forestry Commissioners have agreed to station at the Institute certain of their research officers. In spite of the fact that the Institute is not yet fully organized and that sufficient time has not yet elapsed for the attendance of students from all parts of the Empire, nine students, deputed by the Colonial Office and the

Forestry Commissioners, have begun special courses, and further students are expected to join during the next few months.

The Life of William Cobbett. By G. D. H. Cole. Pp. x + 458. (Collins, Sons & Co., London. 18*s.*)

"Take this self-taught peasant for all in all, he was perhaps, in some respects, a more extraordinary Englishman than any other of his time." So said *The Times* in its obituary notice of Cobbett, and in his *Life of William Cobbett* Mr. G. D. H. Cole gives a very vivid portrait of this "self-taught peasant" standing out in bold relief against the storm-swept background of the Industrial Revolution and French Wars.

Cobbett's almost superhuman energy was, perhaps, his most striking characteristic. He threw himself heart and soul into all the controversies of his day, and his writings cover an almost incredibly wide field. No matter seemed too trivial to engage his attention, no problem too vast for him to tackle. He lived in a period of transition and was essentially a product of his age. He was full of prejudices and desires inherited from earlier days, but was forced to march with the times and identify himself with the working-class movement, which, by focussing the attention of the workers on their present position rather than on their past was to drive the last nail into the coffin of the old system for which Cobbett repeatedly declared his reverence. The small master was the object of his admiration, and he hated the growing power of the commercial magnates. In his most violent tirades he always maintained that he wished for nothing new, but only a return to the old system under which his forefathers had lived and prospered.

Much of Cobbett's life was necessarily passed amongst townsmen. The growing urban population provided ready material for him to work upon, and it was easier to preach the cause of reform to the massed workers in the new industrial centres than to the scattered rural population. But he was essentially a countryman, and whenever he could he escaped from the town into the country. His outlook throughout his life savoured of the peasant rather than of the artisan, and for this reason he never completely grasped the industrial problems of his time. He wished to see a return to the so-called "good old days" when, according to him, the countryside was peopled with prosperous farmers and contented peasants; when the labourer received a just reward for his labour and was well fed, well housed and able to keep his wife and family in comfort. He thought that Parliamentary Reform and the establishment of a sound system of national finance were the only means by which this end could be effected, and he carried on a vigorous campaign amongst tenant farmers and small landowners to induce them to combine in a demand for these reforms. He was never tired of inveighing against the shocking plight of the farm labourers and of denouncing the tithes of the clergy and pensions and emoluments of placemen, who, he declared, took the very bread out of the people's mouths and were gradually laying waste the countryside. He was not an advocate of the corn laws, for he held that by raising prices they merely decreased the purchasing power of the labourers' wages and raised rates, thus profiting the producer nothing, and this view lost him the support of many farmers. Cobbett wrote a large number of pamphlets setting forth simple ways in which he believed the labourers might improve their lot. He advocated, amongst other things, the re-establishment of cottage industries, which were being destroyed by the Industrial Revolution, and his writings often treat of improvements which he wished to see effected in the methods of husbandry. In *Rural Rides*, perhaps his most widely read work, he gives expression to his love of the countryside and to his desire for the return of rural prosperity, and his agricultural politics are clearly demonstrated. Later in the century Cobbett's views obviously influenced Disraeli, who, out of genuine sympathy with the plight of the agricultural workers supplemented by his personal ambition, desired to effect a union of Tory landowners, small farmers and labourers to oppose the growing political ascendancy of the towns.

In his book Mr. Cole gives a valuable insight into the conditions prevailing both in town and country in the closing decades of the eighteenth century and early years of the nineteenth, and follows Cobbett through all his vicissitudes of fortune and changes of opinion, doing much to explain these changes, which are otherwise somewhat bewildering. He avoids the pitfall of unduly praising his hero, which causes so many biographers to stumble, and gives a clear record of Cobbett's views and actions, leaving the reader to form his own opinion as to the merits and demerits of William Cobbett as writer, politician and farmer.

F. M. B.

THE LEICESTER SHOW, 1924.

When in December, 1920, the venue for the Royal Show for the following five years was finally decided upon, it was confidently anticipated, and with good reason, that the Leicester Show of 1924 would be an outstanding success in every particular. It is therefore a matter of great regret to have to chronicle the adverse circumstances which led to the result failing to justify the prophecies of both the members of the Local Committee and of the Council of the Society.

Widespread outbreaks of foot and mouth disease in the early part of the year gave rise to much misgiving in the minds of all interested in the breeding of stock. The Council, Honorary Director and other Officials, however, refused to take anything but an optimistic view of the future, and proceeded with the arrangements for the annual Show as usual. They are to be congratulated on carrying through the eighty-third annual exhibition of the Society in its entirety.

In view of the continued outbreaks of foot and mouth disease special precautions were taken to avoid risk of carrying infection prior to the opening of the Show, during the Show, and in the transit of animals to and from the Show.

These precautions, although preventing some intending Exhibitors from sending their stock to the Leicester Show, were, I think, generally approved and considered to be necessary to secure the margin of safety for all concerned.

The Society's first visit to Leicester took place at a time when the country was recovering from a dreadful visitation of rinderpest, and the success of that Meeting in 1868 helped, it is said, to dispel the shadows of the past. When the Society first went to Leicester, twenty-eight shows had been held under its auspices, twenty-eight years elapsed before the second visit in 1896, and another period of twenty-eight years passed before the third visit in 1924. Figures relating to these three Leicester Meetings are given in the table below:—

Year	President	Implements etc. entered	Entries of Live Stock	Persons paying for Admission	Amount of Prizes	Financial Result + = Profit — = Loss
					£	
1868	6th Duke of Richmond	6,369	994	97,138	2,480	+ 488
1896	Late Sir Walter Gilbey, Bart. . . .	6,447	1,883	146,277	6,017	+3,600
1924	Mr. Ernest Mathews, C.V.O.	3,002*	3,975	85,531	15,362	—5,976

* Certain exhibits not now numbered.

In view of the visit of the "Royal," no County Show was held in 1924, and, following the usual custom, Members of the Leicestershire Agricultural Society were accorded special privileges in connection with the national agricultural function.

The showground, adjoining Abbey Park, and a mile from the centre of Leicester, covered an area of about 140 acres. To facilitate dealing with the special traffic, the London and North-Eastern Railway Company constructed a siding adjoining the site.

Electric cars from the city ran right up to the Main Entrance in Blackbird Lane, and a special service was put into operation by the Corporation during the Show period.

Including champions, specials and medals, the total value of the prizes offered for competition in all sections was £15,362, towards which sum the Leicester Local Committee and the various Breed Societies made generous contributions.

Comparative statements are given, as on former occasions, of the number of entries in the various sections at Leicester in 1924 and 1896, and other Shows of recent years.

Entries of Live Stock, Poultry and Produce.

	Leicester, 1924	Newcastle, 1923	Cambridge, 1922	Derby, 1921	Darlington, 1920	Cardiff, 1919	Manchester, 1916	Nottingham, 1915	Leicester, 1896[2]
Horses . . .	768[1]	641[1]	713[1]	601[1]	714[1]	569[1]	518[1]	500[1]	594
Cattle . . .	1,302[1]	1,185[1]	1,547[1]	1,254[1]	1,175[1]	867[1]	803[1]	862[1]	594
Goats . . .	60[1]	68[1]	61[1]	68[1]	143[1]	91	92	—	—
Sheep . . .	633	728	715	788	739	586	607	575	551
Pigs . . .	1,212	1,048	1,164	902	692	389	321	360	144
Total . .	3,975	3,670	4,200	3,613	3,463	2,502	2,341	2,297	1,883
Poultry . .	1,157	1,189	1,205	1,219	1,476	1,383	1,519	1,286	901
Produce . .	300	436	247	322	475	387	565	461	574

[1] Exclusive of Double Entries.

[2] Entries in a Class by one Exhibitor limited to two.

Shedding in Implement Yard (in Feet).

Description of Shedding	Leicester, 1924	Newcastle, 1923	Cambridge, 1922	Derby, 1921	Darlington, 1920	Cardiff, 1919	Manchester, 1916	Nottingham, 1915	Leicester, 1896
Ordinary . .	4,145	4,280	4,450	4,595	5,410	4,540	3,300	4,885	8,506
Machinery . .	3,685	4,230	4,240	5,560	5,710	4,200	1,290	2,935	2,732
Special . . . (Seeds, Models, etc.)	3,867	3,392	3,501	3,835	3,374	2,469	2,480	2,884	2,692
Total . . . (Exclusive of open ground space)	11,697	11,902	12,191	13,990	14,494	11,209	7,070	10,704	13,930
No. of Stands	455	453	494	508	471	371	239	339	450

COMPARATIVE STATEMENT OF ENTRIES, &c.,
AT TWO SHOWS HELD AT LEICESTER IN 1896 AND 1924.

HORSES, CATTLE AND GOATS.	1896		1924	
	Classes	Entries	Classes	Entries
HORSES :—				
Prizes . .	—	*£1,880*		*£4,634 5s.*
Shires	10	173	12	128
Clydesdales . .	5	27	9	62
Suffolks . . .	5	28	11	77
Percheron . . .	—	—	9	75
Agricultural Horses	4	36	—	—
Hunters—				
Breeding Classes	14	164	12	101
Riding Classes .	—	—	6	113
Polo and Riding Ponies—				
Breeding Classes	—	—	8	31
Hack and Riding Ponies . .	—	—	3	29
Arabs	—	—	2	11
Cleveland Bays	4	19	2	1
Coach Horses			2	2
Hackneys . . .	11	93	5	21
Hackney Ponies .	5	27	4	13
Welsh Ponies . .	—	—	3	17
Shetland Ponies .	—	—	2	10
Children's Ponies .	—	—	2	33
Pit Ponies . . .	—	—	3	10
Driving Classes .	3	27	17	137
Jumping . . .	—	—	4	203
Total for HORSES	61	594	116	1,074[1]
CATTLE :—				
Prizes . .		*£1,656*		*£5,557 10s.*
Shorthorn . . .	7	127	11	158
Hereford . . .	6	47	9	66
Sussex	4	27	5	30
Welsh	4	23	5	52
Aberdeen Angus .	4	81	6	63
Dun and Belted Galloway . .	—	—	4	13
Galloway . . .	4	22	4	25
Highland . . .	2	6	—	—
Park Cattle . .	—	—	2	6
Dairy Shorthorn .	—	—	11	228
Lincolnshire Red Shorthorn . .	—	—	7	65
Devon	5	26	6	14
South Devon . .	—	—	5	12
Longhorn . . .	—	—	3	5
Red Poll . . .	4	28	6	75
Blue Albion . .	—	—	6	57
British Friesian .	—	—	11	162
Ayrshire . . .	2	7	4	21
Guernsey . . .	4	46	7	55
Jersey	5	130	7	123
Kerry	2	14	5	38
Dexter	2	17	5	34
Dairy Cattle . .	6	43	—	—
Milk Yield . .	—	—	14	164
Butter Test . .	—	—	2	112
Total for CATTLE	61	594	145	1,578[1]
GOATS :—				
Prizes . .				*£110*
Inspection Classes	—	—	10	60
Milk Yield . .	—	—	1	32
Total for GOATS			11	92[1]

SHEEP, PIGS, POULTRY, AND PRODUCE.	1896		1924	
	Classes	Entries	Classes	Entries
SHEEP :—				
Prizes . .		*£1,291*		*£2,215*
Oxford Down . .	5	28	5	54
Shropshire . . .	6	127	6	52
Southdown . . .	5	64	6	47
Hampshire Down .	5	60	5	45
Suffolk	5	23	6	44
Dorset Horn . .	2	7	3	4
Dorset Down . .	—	—	3	12
Wiltshire or Western Horn	—	—	2	13
Ryeland	—	—	5	36
Kerry Hill (Wales) .	—	—	4	34
Lincoln	6	50	6	44
Leicester . . .	6	42	4	36
Border Leicester .	5	42	4	12
Wensleydale . .	2	14	5	36
Kent or Romney Marsh	2	23	6	66
Cotswold . . .	5	20	4	12
Devon	—	—	2	4
South Devon . .	—	—	4	13
Lonk	2	4	2	8
Derbyshire Gritstone	—	—	2	0
Herdwick . . .	2	10	3	16
Exmoor Horn . .	—	—	3	5
Dartmoor . . .	—	—	2	2
Cheviot	2	7	3	2
Blackfaced Mountain	2	12	3	9
Welsh Mountain .	2	18	2	15
Black Welsh Mountain	—	—	2	12
Total for SHEEP .	64	551	102	633
PIGS :—				
Prizes .		*£432*		*£1,768*
Large White . .	4	35	8	193
Middle White . .	4	19	8	272
Small White . .	4	8	—	—
Tamworth . . .	4	24	6	28
Berkshire . . .	4	55	8	119
Large Black . .	4	3	8	250
Gloucestershire Old Spots	—	—	8	111
Lincolnshire Curly Coated . . .	—	—	6	40
Cumberland . .	—	—	6	27
Wessex Saddleback	—	—	8	91
Essex	—	—	6	59
Long White Lop-Eared . . .	—	—	3	22
Total for PIGS .	24	144	75	1,212
POULTRY :—				
Prizes .		*£245*		*£477 6s.*
Entries .	88	901	104	1,157
PRODUCE :—				
Prizes .		*£301*		*£300*
Butter	2	141	6	59
Cheese	10	153	15	144
Cider	4	95	3	27
Wool	—	—	17	70
Hives and Honey .	15	185	—	—
Total for PRODUCE	31	574	41	300

Grand Totals for LIVE STOCK, POULTRY, PRODUCE, &c.				
	1896	329 Classes	3,358 Entries	£6,017[2] Prizes
	1924	594 Classes	6,079 Entries	£15,362[3] Prizes

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[1] Animals exhibited in more than one class are here counted as separate entries.

[2] Including £98 for Implements, £74 for Butter Making Competitions, and £32 for Horse-Shoeing Competitions.

[3] Including £300 for Horticulture.

Horses made the biggest entry since 1914; with the exception of Cambridge in 1922, the Cattle entries were larger than at any Show since the Society's "Jubilee" at Windsor in 1889; pig entries created another new record; and, though the number of goats and sheep entered were fewer than in 1923, yet the aggregate of the live stock entered in 1924 had only twice been exceeded. In 1922 at Cambridge the total was 4,200; at Windsor in 1889 the number was 3,976—one more than in 1924.

Generally, the various breeds of Horses were well represented in the showyard, and the absentees were few. Record entries were made for the prizes offered for Horse Jumping, and the daily competitions in the Large Ring were keenly contested. Owing to the restrictions on movement, and to the precautionary conditions laid down by the Society, there were many empty stalls and pens in the other live stock sections.

Notwithstanding the fact that probably one-third of the cattle entered failed to appear in the yard, the standard of quality one usually associates with the "Royal" was creditably maintained by the animals actually shown. Sheep and Pigs suffered heavily, too, from absentees, but the exhibits present provided quite a representative display. A breed making its appearance for the first time in the showyard of the national society was the Long White Lop Eared Pig.

As compared with the previous Show, the Produce Section, comprising butter, cheese, cider and wool, showed some falling off. A section for honey, hives and bee appliances was organised by the British Bee Keepers' Association, and demonstrations of bee driving were given during the Show.

The Poultry Section, exhibits in which numbered 1,157, and comprised birds of nearly thirty different varieties, was opened on the second day of the Show, and continued for the remainder of the week.

Entries in the Horticultural Section at Leicester were more numerous than in former years, and the exhibition, which was open from the Tuesday to the Friday, proved particularly attractive.

Horse-shoeing competitions, open to shoeing smiths from all parts of the country, were carried out by the National Master Farriers' and Blacksmiths' Association at Leicester on lines similar to those of last year. These competitions—which included the Shoeing Championship of Great Britain—excited considerable interest, and the lectures given in the shoeing forge during the Show drew appreciative audiences.

An exhibit reflecting great credit on all concerned was the Model Allotment in the Showyard arranged by the Leicester County Council.

One of the most interesting exhibits—particularly to sheep farmers visiting the Show from Overseas—was that arranged in a building adjoining the Produce Section demonstrating results obtained in an investigation into the nature of pedigree wools, and their spinning and weaving qualities. Two years ago, the Royal Agricultural Society, with the help of the British Flock Book Societies, collected for the University of Leeds typical lots of wool and skins of twenty-seven different breeds. Selected skins of representative sheep, tanned with the wool on, were shown, together with specimens of every stage in the manufacturing process. Enlarged photographs of typical sheep and brief histories of the breeds represented were also exhibited. This interesting demonstration was arranged by Prof. A. F. Barker of the University of Leeds, from whose pen an article entitled "British Wools" appears in this volume.

A section devoted to Dogs has formed part of the Royal Show on several former occasions, but at Leicester the experiment was tried by the Society of holding this Department under its own auspices and management. Prizes were offered for some fifty breeds, and the Kennel Club granted Challenge Certificates for the "best dog" and "best bitch" of each breed. The Championship Dog Show at Leicester occupied two days—July 2 and 3, and, both in numbers and quality of exhibits, the experiment proved a great success.

No band performances have taken place at the "Royal" since it was decided some years ago that such performances rendered agricultural show visitors liable to Entertainments Tax. A concession subsequently made having reversed this decision, the Society was able to engage the Band of His Majesty's Life Guards (1st and 2nd) to give performances daily during the Leicester Show.

Separate reports are included in this volume dealing with the Miscellaneous Implements, the Working Dairy, the Farmers' Milk Competition, as well as the Forestry and Educational sections. The List of Awards made by the Judges in the different sections will be found in the Appendix.

On Tuesday, July 1, the Show was favoured with cool but pleasant weather, and the judging, which, as usual, was the main business of the opening day, was carried through under agreeable conditions.

Though the second day opened with rain, the sun was shining by 10.30, and the conditions remained fair for the rest of the day. The Show was honoured by a visit from H.R.H. Prince Henry, K.G., who arrived about mid-day, and was present at the General Meeting of Governors and Members in the large tent. In a speech acknowledging a resolution of welcome, His Royal Highness said:—" The fact that the Officials decided to carry out the Show in its entirety, in spite of adversity, is worthy of the courage and persistence of such an old Society, and I think that Sir Gilbert Greenall ought to have our heartiest thanks for the steps he has taken to arrange every detail of the Show with such perfection as we see it to-day."

After luncheon, His Royal Highness, accompanied by the President (Mr. Ernest Mathews) and the Honorary Director, made a tour of the Show, during which visits were paid to the Working Dairy, the Wool Section, the Horticultural, Forestry and Educational Exhibitions, the Leicester County Council Model Allotment and the Dog Show. Later, His Royal Highness spent some time in the Grand Stand watching the events in the Horse Ring.

Thursday opened with fine weather, but, in spite of the fact that from 11 o'clock onwards there was a good deal of rain, the attendance on this day (35,347) was the largest during the Show. During the night of Thursday-Friday, a gale raged over Leicester, and a certain amount of damage was caused in the showyard. Among the sections to suffer were the Horticultural Exhibition and the Dog Show. The effects of the storm were, however, not so serious as might have been expected.

Friday morning was bright and clear, but during the afternoon there were several heavy showers, and there was but a poor attendance of the public.

In the early part of Saturday the conditions were not unfavourable, but heavy rain fell from 3.30 till the close of the Show.

As will be seen from the comparative statement of admissions by payment, the attendances during the five days of the 1924 Show reached 85,531 against 186,510 at Newcastle in 1923, and 146,277 at Leicester in 1896.

Admissions by Payment at Leicester, 1924.

Day of Show.	11 a.m.	1 p.m.	3 p.m.	5 p.m.	Day's total.
Tuesday (10*s.*) . . .	1,015	1,872	2,166	2,265	2,273
Wednesday (5*s.*) . .	4,390	10,889	14,862	16,093	16,204
Thursday (3*s.*) . . .	9,092	20,323	30,034	34,752	35,347
Friday (3*s.*) . . .	4,065	8,591	12,668	14,251	14,845
Saturday (2*s.*) . . .	3,298	6,683	12,886	16,557	16,862
					85,531

Total Admissions at Leicester in 1924, *compared with previous six Shows and Leicester*, 1896.

Day of Show	Leicester, 1924	Newcastle, 1923	Cambridge, 1922	Derby, 1921	Darlington, 1920	Cardiff, 1919	Manchester, 1916	Leicester, 1896
First . . .	2,273	3,587	3,338	3,791	11,397	8,466	4,067	1,801
Second . .	16,204	37,926	21,880	33,979	51,479	45,096	29,145	17,409
Third . . .	35,347	63,183	31,903	33,931	52,626	68,838	36,938	21,735
Fourth . .	14,845	42,457	21,408	31,777	40,389	36,292	40,874	80,602
Fifth . . .	16,862	39,357	13,823	22,350	27,001	33,002	38,173	24,558
	85,531	186,510	92,352	125,828	182,892	191,694	149,197	146,277*

* Including 172 on preliminary "Implement Day."

This result was disappointing, but probably a variety of circumstances was responsible for the smallness of the "gate." The indifferent weather was, no doubt, an important factor, and another was the counter-attraction of the British Empire Exhibition at Wembley, which was visited by several thousands of people from Leicester during the period of the Society's Show.

T. B. Turner.

16 Bedford Square,
London, W.C.1

MISCELLANEOUS IMPLEMENTS EXHIBITED AT LEICESTER, 1924.

This year there were 37 implements entered for the Society's Silver Medals for "New Implements" for Agricultural or Estate purposes, compared with 50 entered last year. Four entries were withdrawn, leaving 33 to be judged.

Though the number was smaller than has been the case during the last few years, there is no diminution of the ingenuity and originality shown, and it is gratifying to note that, in spite of the depression in the trade, there is no relaxation of the efforts to produce new and more efficient implements.

The Judges awarded three Silver Medals as under, following the order of the Catalogue:—

1. *Potato Digger.*
   Exhibited by T. M. Jarmain, Ltd., Haseley, Oxon.
2. *Rein-Driven Tractor.*
   Exhibited by John Fowler and Co. (Leeds), Ltd., Leeds.
3. *Fencing Dropper.*
   Exhibited by J. B. Corrie and Co., 15 Victoria Street, London, S.W.1.

The following is a description of these exhibits:—

Stand 42. No. of Exhibit, 191. *Potato Digger*, shown by T. M. Jarmain, Ltd., Haseley, Oxon.

The leading feature of this machine is a rigid semi-horizontal tine wheel to the periphery of which are attached the tines at an angle outwards of about 25 degrees from the centre spindle which is positioned at an angle of about 20 degrees from vertical.

The result of this arrangement is that the tines have a sweeping horizontal movement across the ridges, with no tendency to lift the soil, and this is accomplished without the aid of complicated and costly mechanism.

The drive is by chain and sprockets. A pinion of any reasonable size can be used to give the tine wheel the speed suitable to the conditions prevailing where it is working.

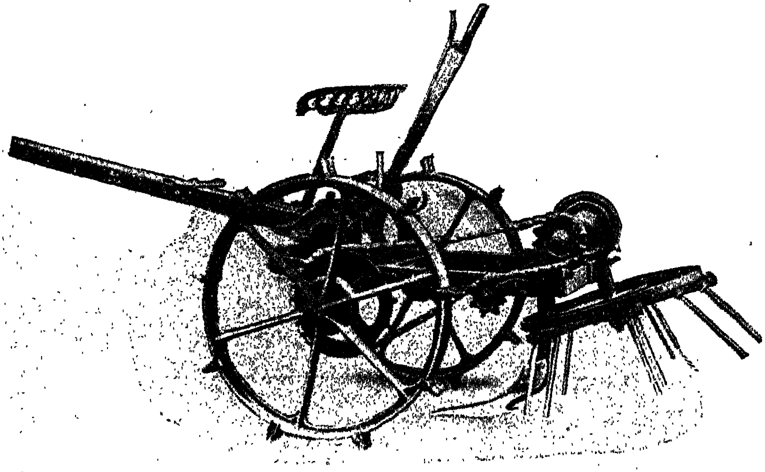

Fig. 1.—Jarmain's Potato Digger.

There is a screen provided to stop the few potatoes that are thrown too far—the distance from the machine being adjustable. This screen has two good features. First, it trails upon the ground so that no potatoes can pass under it, and secondly, it is formed by one cord instead of netting, and the cord is held taut by a spring frame. The cord is of course much cheaper to renew than a net.

The machine was tried on a crop of potatoes which had unusually long and heavy haulms, and worked perfectly, exposing all the potatoes and laying the haulm in a straight, narrow line.

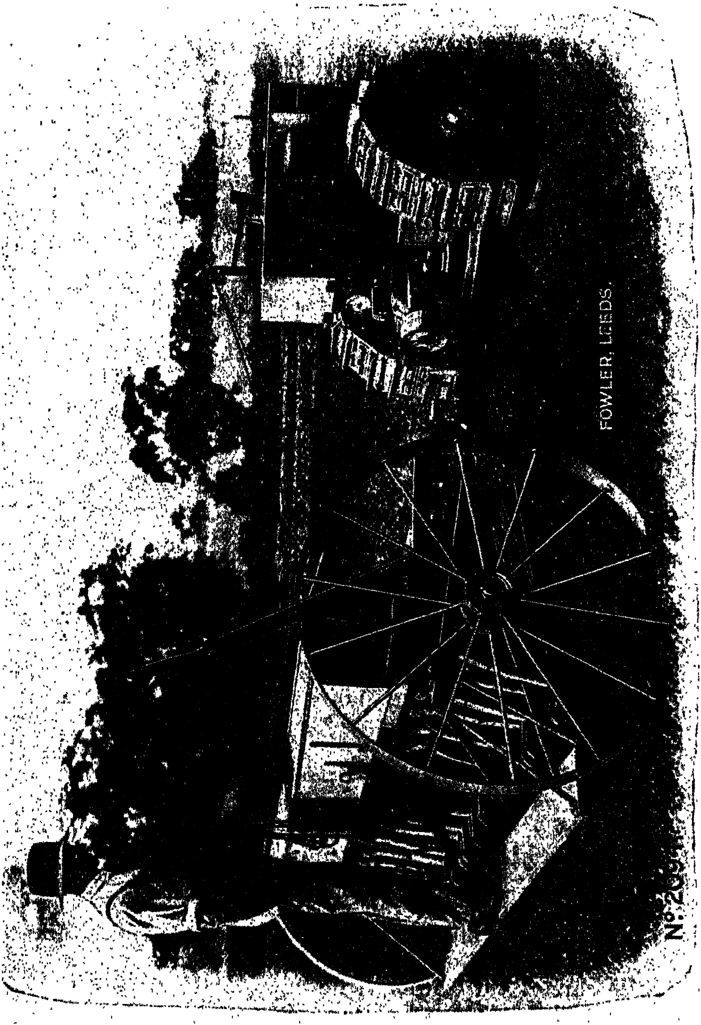

Fig. 2.—Fowler's Rein Drive Tractor.

Its great simplicity should make it cheap to make, easy to pull, fool-proof and durable.

Stand 88. No. of Exhibit, 700. *Rein Controlled Tractor,* shown by John Fowler and Co. (Leeds), Ltd., Leeds.

This is a most interesting machine, and is the nearest approach to a mechanical horse that has yet been brought out. There is something "uncanny" in the way in which it answers the slightest movement of the reins going backwards or forwards or turning in either direction. A slight jerk of the reins puts the tractor into forward gear, and the band clutch takes up the drive quite smoothly. A slight pull at the right- or left-hand rein steers the tractor. A steady pull on both reins stops it, and a further pull puts the reverse gear in action. The reins are easily operated by one hand, leaving the other free to attend to the implement being drawn. The power steerage enables the tractor to turn over into full lock while standing.

It is fitted with a tubular drawbar which gives a rigid attachment to the implement or vehicle being drawn, and allows it to be backed when desired, and so allows square corners to be cut with mowers and reapers.

It has two wheels which are of the rolling pad type, with suitable strakes, between which wooden blocks can be attached for road work.

The engine is V type, with two cylinders 5½ in. × 7½ in., giving 30 B.H.P. at 1,000 R.P.M. It is fitted throughout with ball and roller bearings, and automatic lubrication, and runs on ordinary paraffin fuel. The clutch is of the contracting band type, which allows easy starting, and is easily adjusted.

The whole machine is a thoroughly sound engineering job, and with reasonable care should last for a long time.

Stand 250. No. of Exhibit, 2377. *Fencing Dropper* (Corax Patent), shown by J. B. Corrie and Co., 15 Victoria Street, London, S.W.1.

The merits of this dropper are its simplicity, cheapness and efficiency.

It is adaptable to any gauge wire and any spacing of wires. It is impossible to slide the dropper along the fence, and the effect of a broken wire is confined to the point of fracture, as the wire cannot run through the clips.

Amongst the other exhibits entered for Silver Medals were several of much interest.

Stand 76. No. of Exhibit, 584. *Artificial Manure Distributor*, shown by Wm. Birtwisle, Hartford, Northwich, Cheshire.

This is a very ingenious and simple machine, with a tilting box with no working parts inside. The distributing mechanism is separate from and quite independent of the box, and consists of a series of chains, on rollers driven by worm and spur gear, which skim the manure in the tilting box.

With the two spare worms and one spare spur gear supplied with the machine, twenty-five different feeds are available, sowing from 1 to 25 cwts. per acre.

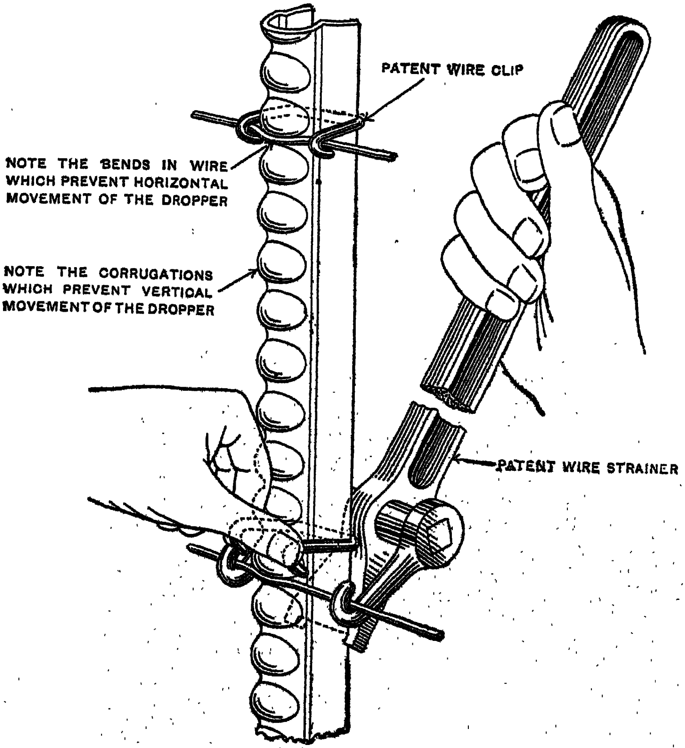
PATENT WIRE CLIP
NOTE THE BENDS IN WIRE WHICH PREVENT HORIZONTAL MOVEMENT OF THE DROPPER
NOTE THE CORRUGATIONS WHICH PREVENT VERTICAL MOVEMENT OF THE DROPPER
PATENT WIRE STRAINER

Fig. 3.—Corrie's Fencing Dropper.

The great simplicity of this machine should ensure a long life and freedom from breakdowns, as, owing to the corrosive nature of chemical manures, it is desirable to have as few working parts as possible in a distributor.

Stand 93. No. of Exhibit, 737. *Grass Mower*, shown by J. B. Edlington and Co., Ltd., Gainsborough.

This is an interesting machine, adapted to cut long grass

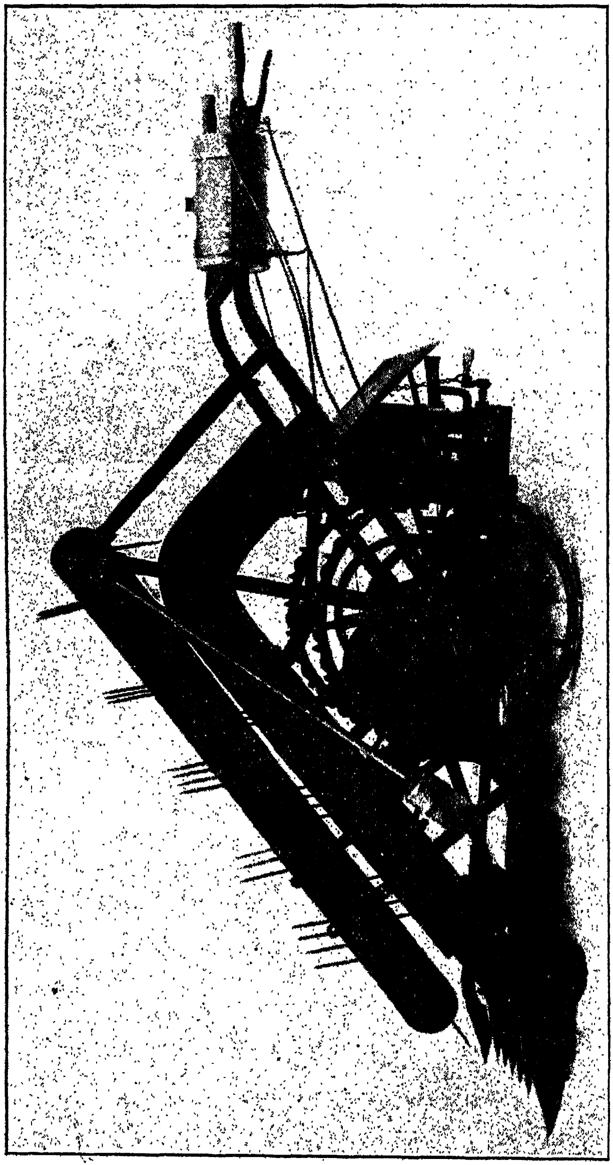

FIG. 4.—Edlington's Grass Mower.

and weeds growing between rows of bushes, such as are found in tea gardens, etc.

It is driven by an internal combustion engine. It has a cutter bar and reciprocating knife similar to that on an ordinary hay mower placed in front of the machine. Behind the cutter bar is a conveyor on which the cut grass is carried by an endless chain fitted with prongs over the top of the machine, and deposited on the track over which the mower has just travelled. The machine can be made any width to suit the work required.

The engine is water-cooled with an ingenious radiator arrangement. All controls are in convenient positions, and clutches allow the whole machine or the knife and conveyor to be put out of gear. As there is a differential on driving wheels, the steering is very easy, and there is a reverse gear fitted so that the machine can be moved anywhere under its own power.

Stand 115. No. of Exhibit, 1217, *Oil Engine*, shown by Blackstone and Co., Ltd., Stamford.

This is an engine with a new device for starting from cold on the lowest grade of oil without the use of compressed air or petrol.

The fuel is injected by means of a spring plunger composed of two members with a spiral spring between them. To one end of this plunger, fuel is delivered by a governed pump. This fuel moves the whole of the plunger with its spring bodily outwards, so that the pump does not have to work against pressure. The spring of the plunger is then compressed by a lever which presses on its outer member, the inner one being held by abutting on the fuel which is retained by the spraying valve. At the inward end of its travel the lever relieves the pressure of a spring which normally keeps the spraying valve closed against the injection pressure, allowing the spring of the plunger to force the fuel into the combustion chamber, where it is ignited by the heat of compression.

One great advantage of this system is, that the fuel is injected at the same pressure at all engine speeds. The compression pressure is 350 lb., and the initial pressure at full load 550 lb., with a M.E.P. of 100 lb. to the square inch.

This device was tried several times, and acted perfectly in starting the engine from cold, and will, no doubt, prove a great boon, especially where it is required to run an engine at intervals for short periods, as is so often the case where it is used for driving farm machinery.

The same firm showed another "New Implement," a 12 H.P. *Synchro Balance Engine*, also a model of the same which shows its mode of action.

In a 4-cylinder engine the arrangement gives a perfect balance of the reciprocating parts. The angularity of the connecting rods is reduced to a minimum, thus causing the ascending and descending pistons to move at equal speeds at all points of their stroke.

It is a very ingenious and novel arrangement, but is at present in a more or less experimental state, and leave was given for it to be shown as a "new implement" next year.

Stand 126. No. of Exhibit 1462. *Side Delivery Rake and Swath Turner,* shown by W. N. Nicholson and Sons, Ltd., Trent Ironworks, Newark-on-Trent.

The chief novelty in this machine is the independent head used for swath turning mounted behind the side rake bars, and unmasked when swath turning is to be done by removing a section of tines from each of the side rake bars, which is very easily and quickly done. The result is to convert the machine into a two-head swath turner, which turns the offside swath in behind the near side one instead of in front of it, as is usual in combination machines. The independent head can be moved to suit different widths of swaths, so that the swaths are turned evenly, and lie the same distance apart as before turning.

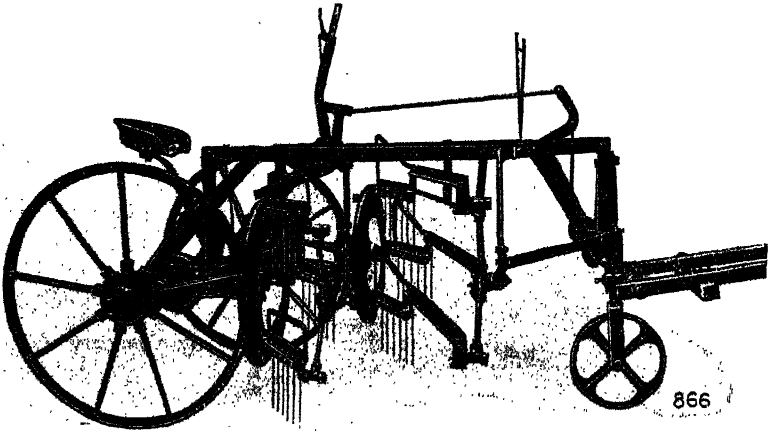

Fig. 5.—Nicholson's Side Delivery Rake and Swath Turner.

The arrangement is a distinct advance on previous combined machines, as it is practically two separate machines—one a single purpose swath turner with none of the disadvantages of a combined machine, and the other a side delivery rake quite independent of the swath turner.

This machine was tried on a freshly cut heavy crop of hay, and worked very well, doing all that is claimed for it.

Stand 133. No. of Exhibit, 1697. *Grass Rejuvenator*, or a machine for Aerating Grass Land, shown by Ransomes, Sims and Jefferies, Ltd., Orwell Works, Ipswich.

This machine has a series of knives or cutters about 7 in. apart. These cutters pass through slotted shoes which are free to rise and fall and have upturned toes so as to ride over obstructions. A "bursting" knife is mounted behind each cutter and opens the cut.

It is claimed that the work of this machine is much more effective than that of harrows, etc.

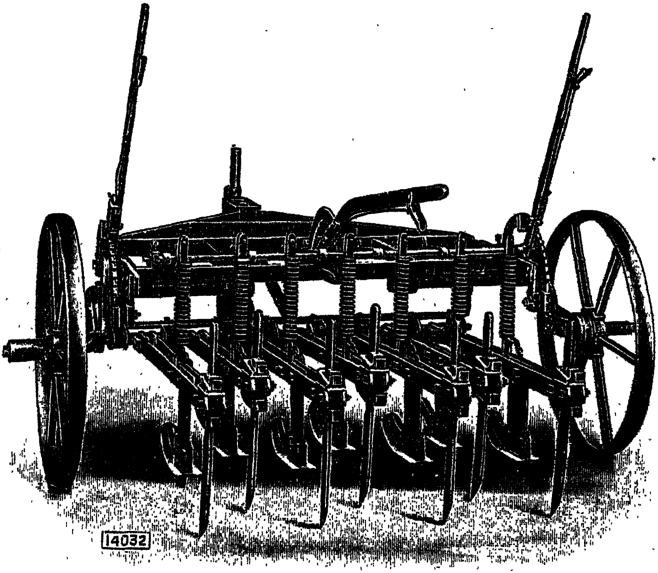

FIG. 6.—Grass Rejuvenator.

Stand 150. No. of Exhibit, 1945. *Miracle Pulveriser and Grinder*, shown by Watmoughs, Ltd., Idle, Bradford, Yorkshire.

This is an extremely interesting grinder.

The grinding is effected by shattering the material to be ground by blows and not by attrition between two relatively moving parts.

A battery of pressed steel hammers or "maces" revolving at a very high speed strike the slowly falling material as it enters the grinding chamber, and dissipates it into fine dust which flies through a screen surrounding the grinding chamber.

When tried, the results were surprising, such unlikely materials as feathers and straw were passed through the machine, and came out as very fine dust.

The machine is so simple that the wear and tear should be very small.

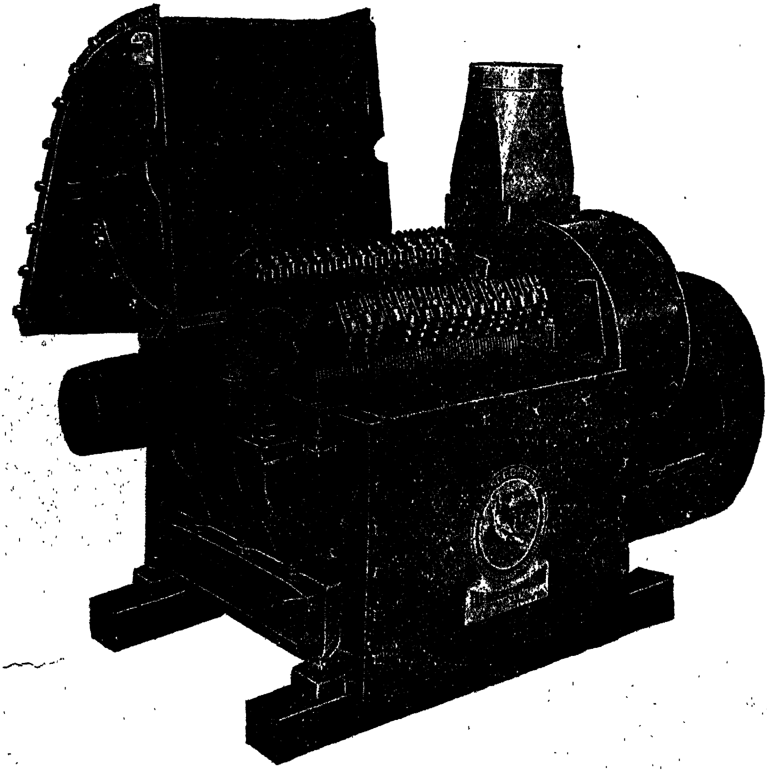

FIG. 7.—Watmoughs' Miracle Pulveriser and Grinder.

Stand 154. No. of Exhibit, 1994. *Straw Rope Making Machine,* shown by McLaren's Straw Rope Works, Offerton Hall, Sunderland.

This is a machine for making straw ropes, for which there is a great demand for packing purposes for all classes of goods, from iron castings to the most fragile articles.

It is understood that the demand has been met hitherto by imported ropes, but there appears to be no reason why they should not be produced in this country, where the manufacture would make a useful side-line in corn growing districts.

The machine is very simple, and produces a two-strand rope. One girl can work the smaller machines; two girls are required for the larger machines. The manipulation is very easy and can be learnt in a few hours.

This machine will make a continuous rope, and wind it into rolls of 250 yards, or it will cut the rope into any lengths up to 7 ft.

Stand 161. No. of Exhibit, 2039. *Portable Steam Engine*, shown by The Sentinel Waggon Works (1920), Ltd., Shrewsbury.

This consists of one of the firm's well-known engines which have been so successful in their steam waggons. It is mounted on a strong channel steel chassis, at one end of which is carried a sentinel boiler to which has been added a specially enlarged firebox to make it possible to burn almost any fuel.

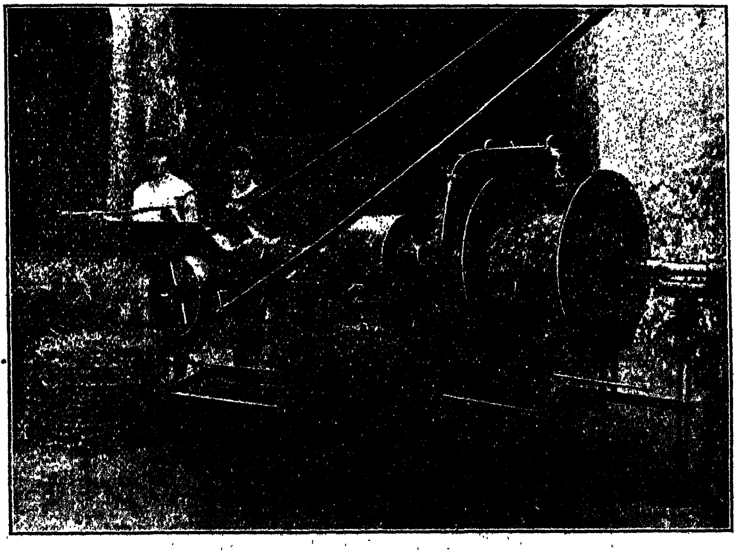

FIG. 8.—McLaren's Straw Rope Making Machine.

As is well known, this boiler with its super heater and feed water heater, is extremely efficient and economical, and the whole outfit gives a portable engine of great power and light weight.

Stand 346. No. of Exhibit, 2817. *Electrically-Driven Cream Separator*, shown by Watson, Laidlaw and Co., Ltd., 98 Dundas Street (South), Glasgow.

The novelty in this case consists in the fitting of a centrifugal clutch arrangement whereby the full current can be switched on to motor at starting, as it starts at practically no load, and the load does not come on through the action of the centrifugal clutch until the motor has attained something like working speed.

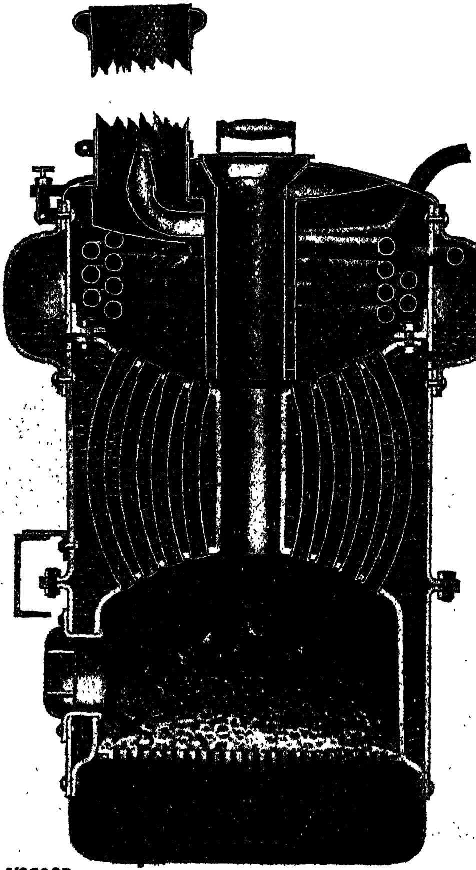

FIG. 9.—Boiler attached to Fowler's Steam Waggon.

Of the remainder of the implements entered for Silver Medals, eight were Pig Feeders, the demand for which appears to be very great. They do not differ very greatly from one another. In all of them the pig, by the movement of his snout, admits a given quantity of dry food into a trough.

Amongst exhibits not entered for Silver Medals were several very interesting appliances.

Stand 88. John Fowler and Company (Leeds), Ltd., Steam Plough and Locomotive Works, Leeds, showed a *Steam Waggon*, which has many attractive features.

The boiler (see Fig. 9) is designed on entirely new lines to give an ample supply of steam for prolonged heavy work. There are no stays. It has spherical pressed firebox and smoke box tube plates, into which are fitted 108 curved fire tubes which are always submerged, and thus protected from overheating. An extension fitted at the top of the boiler gives a large water line area and steam space, and reduces the liability to sudden fluctuations in the water level.

A super heater is fitted in smoke box, in which the steam temperature is raised to cir. 590 degrees F., also a heating chamber, through which the exhaust steam passes on its way to the funnel, the object being to silence the exhaust and render the steam invisible.

The engine is compound V type, placed under the driver's seat. The connecting rods have a common big end fitted with roller bearings. The gear box gives three running speeds.

The waggon has a minimum ground clearance of 12 in., and is fitted with hydraulic tipping gear. Brake bands are removable without disturbing anything else.

Altogether, this steam waggon, with its short wheel base and large loading capacity, simplicity and accessibility, is a most attractive proposition.

Stand 89. Aveling and Porter, Ltd., Rochester, Kent, showed a *Road Roller*, driven by a slow running internal combustion engine, using crude or residual oils or paraffin.

It is significant of the present-day tendency to install internal combustion engines in place of steam engines, to find this exhibit on the Stand of a firm who have done so much to perfect the steam roller, and whose steam rollers are at work all over the world.

Doubtless the absence of a boiler will be found a great advantage, especially in some countries where the rules as to inspection, etc., are strict, but where it is often a long and troublesome business to get the inspection made.

The small quantity of water required will also be a great advantage in many places.

The engine has a single water jacketed cylinder of sufficient power to meet all reasonable demands.

A self-starter of the compressed air type is fitted, with an automatic charging arrangement, so that full pressure is always available.

The frame is a remarkably rigid construction of heavy steel plate and stays.

Stand 109. Boulton and Paul, Ltd., Riverside Works, Norwich, showed a *Boulton Patent Water Elevator*.

This is a very simple and efficient apparatus, designed to replace the ordinary deep well pump. It consists of a pulley mounted on the top of a tank, On the pulley is carried an endless band, which reaches down to the bottom of the well. On this band is mounted a metal band which is bent to form a series of open cells (as shown in illustration).

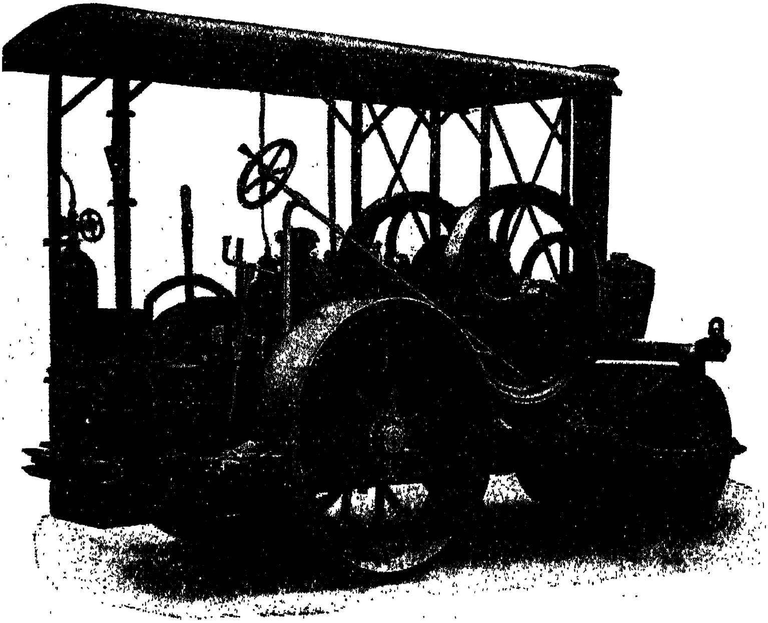

FIG. 10.—Aveling and Porter's Road Roller.

Owing to the shape of the cells, and the surface tension of the water, they remain full as long as they are in a vertical position, but when the band passes over the top pulley, and is bent, the water runs out and is discharged into the upper tank.

The arrangement of the machine is simplicity itself, and the surprising thing about it is the very high efficiency which is obtained.

Messrs. Boulton and Paul gave the results of tests on a lift of 152 ft., in which an over-all efficiency as high as 74 per cent. was obtained.

As there are no fixtures in the well, no ladders or stages are required, and the absence of all vibration renders the apparatus peculiarly suitable for old or unsafe wells.

Owing to the few moving parts, the cost of upkeep should be very small.

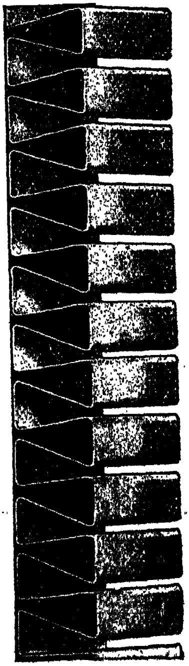

FIG. 11.—Boulton Patent Water Elevator.

Stand 259. English Bros., Ltd., Wisbech, showed a *Burne's Patent Windmill*, charging a battery of accumulators, which has several novel features.

The windmill shown had four sails. The governing system consists in dividing the sail in the direction of its length into two parts, each part being hinged to the radial arm.

Suitable link work, controlled by a rod passing through the hollow of the main shaft and pressed forward by a lever and weight, holds the component parts of the sail up to the wind pressure.

An excess of wind overcomes the effect of the weight and causes the component parts of the sail to fold back, and so spills a certain amount of the wind. When it is desired to stop the mill, the sails can be instantly furled by folding them completely back and so presenting only an edge to the wind.

The method of charging the accumulators is novel and ingenious. Hitherto the usual plan has been to employ a special generator arranged to give a practically constant voltage over a wide range of speed. This may be described as a constant voltage but varying current system, and entails the risk of a too large or too small charging current, with the tendency on the one hand to disintegration of the plates and wastage of the electrolyte, and on the other of starvation and sulphation of the positive plates.

In Burne's Patent Windmill an ordinary dynamo is used.

The battery is divided into groups, which are charged in turn. The change over from one group to another being made after a given number of revolutions of the windmill and dynamo. The number of cells in each group being regulated by a centrifugal governor, so that as the speed of the windmill and dynamo rises or falls, more or fewer cells receive the charge, thus approximately adapting the counter E.M.F. of the battery to the voltage of the dynamo.

One advantage of this system is that the windmill may be run during lighting hours without any injury to the lamps.

Besides the exhibits mentioned, there were many others of great interest which, as stated in the beginning of this Report, show that our agricultural engineers are as enterprising as ever, and are exploring every avenue which may lead to increased efficiency and economy which, in the present depressed state of agriculture, are more than ever called for; but to mention them in detail would be beyond the scope of this Report.

In conclusion, I wish to express the thanks of my co-Judge, Mr. W. Robins, and myself, to the Steward of Implements, Col. G. L. Courthope, for the great help he gave us, and the admirable arrangements which he made for the Trials of Implements; and to Mr. F. S. Courtney, the Society's Consulting Engineer, for his very great courtesy in helping us in every possible way, and giving us the advantage of his great knowledge and experience.

R. M. GREAVES.

Wern,
Portmadoc.

REPORT OF THE STEWARD OF DAIRYING, LEICESTER SHOW, 1924.

FARMERS' MILK COMPETITION.

THIS competition was carried out on somewhat similar lines to those adopted in the competition at Newcastle last year, which were based upon the rules originated for the competition at Manchester in 1916. It was open to Farmers supplying milk daily from the counties of Leicester, Rutland and Northampton to anywhere within the City of Leicester.

The Classes and Prizes were as follows :—

Class 1.—Farmers being Licenced Producers of Graded Milk (Certified or Grade " A ") sending the same by road or rail in two deliveries morning and evening. Prize, £6 6*s*.

Class 2.—Farmers sending by road or rail 46 gallons of milk and upwards in two deliveries, morning and evening. First Prize, £6 6*s*. Second Prize, £3 3*s*.

Class 3.—Farmers sending by road or rail 10 to 45 gallons of milk in two deliveries, morning and evening. First Prize, £4 4*s*. Second Prize, £2 2*s*.

Awards of Merit were also given :—

To those obtaining 70 points and upwards, First Grade.
,, ,, 51–69 points, Second Grade.
,, ,, 41–50 points, Third Grade.

The samples of milk were taken, without notice, between May 19 and June 19, by the Local Authorities.

The points on which the awards were made were as follows :—

4 points for every 1 per cent. of fat.
2 ,, ,, ,, 1 per cent. of solids other than fat.
20 ,, as a maximum for comparative freedom from Bac. Coli.
20 points as a maximum for comparative freedom from other bacterial contamination.

Milks were disqualified from receiving a Prize or Award of Merit for any of the following reasons :—

(*a*) Showing less than 3 per cent. of fat at either sampling.
(*b*) ,, ,, ,, 8·5 per cent. of solids not fat at either sampling.
(*c*) Not obtaining any points for comparative freedom from Bac. Coli.
(*d*) Not obtaining any points for comparative freedom from other bacterial contamination.

The points awarded for comparative freedom from B. Coli were :—

B. Coli not detected in 1 c.c.	. . . . . .	20 points.
,, ,, ,, ,, 0·1 c.c.	. . . . . .	10 ,,
,, ,, ,, ,, 0·01 c.c.	. . . . . .	5 ,,

The points awarded for comparative freedom from other bacterial contamination were :—

Count not exceeding 30,000 organisms per c.c.	. . . .	20 points.
,, ,, ,, 100,000 ,, ,, ,,	. . . .	10 ,,
,, ,, ,, 200,000 ,, ,, ,,	. . . .	5 ,,

There were no entries for Class I. Eleven entered in each case for Classes II and III.

The Prizes were awarded as follows :—

Class II.

First Prize.—Ernest Thirlby, Stanton-under-Bardon, Leicester.
Second Prize.—William Ball, Old Farm, Ratby.

Class III.

First Prize.—Joseph Ball, Hopyard Farm, Ratby.
Second Prize.—Frank Berrisford, Hall Farm, Ashby Magna.

Awards of Merit were given to the under-mentioned competitors.

Grade II.

Enderby Co-operative Society, Ltd., Manor Farm, Queniborough.
John Thomas Heard, The Glebe Farm, Lutterworth.
William George Bowley, Folly Farm, Pockleton, Leicester.
N. Forster, Cotterell Farm, Houghton-on-the-Hill.
J. Grundy Wood, Hill Top, Walcote, Rugby.

Grade III.

Joseph Ball, Woodley Farm, Ratby.
Co-operative Wholesale Society, The Grange, Staughton, Leicester.
John Henry Page & Son, Horsepool Grange, Stanton-under-Bardon.
Page Bros., Glebe Farm, Blaby, nr. Leicester.

In every case the composition of the milk was well above the so-called Government Standard—3 per cent. fat and 8·5 per cent. solids not fat, but 9 out of the 22 herds were unable to gain the requisite number of marks given under the headings B. Coli and Freedom from other Bacterial Contamination.

The following Table gives the results of those who obtained Prizes or Awards of Merit :—

The quality of the milk is shown by the following average figures :—

No. of herds	Daily milk yield.	Average fat per cent.	Average solids not fat per cent.
22	63 gallons	3·86	8·89

TABLE I.

CLASS II.

No. in Catalogue.	Daily Delivery of Milk			Fat Percentage			Solids-not-Fat Percentage			B. Coli Present		Freedom from Bacterial Contamination		Points					Awards	Remarks
	Morning	Evening	Total	Morning	Evening	Average	Morning	Evening	Average	Morning	Evening	Morning	Evening	Average Fat Percentage	Average Solids-not-Fat Percentage	B. Coli Present	Freedom from Bacterial Contamination	Total Points		
10	20	30	50	3·4	4·2	3·80	8·92	8·75	8·835	No	·01 (one tube)	Under 10,000	50,000	15·20	17·65	11·00	12·50	56·35	1st Prize	
3	28	22	50	4·8	3·5	4·15	8·69	8·78	8·735	·1	No	Excess	Under 50,000	16·60	17·47	15·00	7·10	56·17	2nd Prize	
8	32	17	49	3·5	3·9	3·70	8·99	9·00	8·995	No	·1	Under 10,000	Excess	14·80	17·99	12·50	10·00	55·29	Award of Merit	Grade II
6	—	—	52	3·2	3·8	3·50	9·10	8·75	8·925	No	·01	Under 50,000	Excess	14·00	17·85	11·00	10·00	52·85	Award of Merit	Grade II
2	28	20	48	3·5	4·0	3·75	8·88	8·70	8·79	·1	Not in 48 hours	Under 20,000	Under 30,000	15·00	17·58	10·00	7·50	50·08	Award of Merit	Grade III
5	—	—	130	3·8	4·3	4·05	8·80	8·97	8·885	No	·01	Under 100,000	Excess	16·20	17·77	10·00	5·00	48·97	Award of Merit	Grade III
1	272	204	476	3·2	4·3	3·75	8·70	8·51	8·605	·01	·01	Excess	Under 200,000	15·00	17·21	Nil	5·00	37·21		Disqualified
9	30	20	50	4·1	4·3	4·20	9·03	8·90	8·965	·1	·1	Excess	Excess	16·80	17·93	Nil	Nil	34·73		-Disqualified
11	28	22	50	3·6	4·5	4·05	9·09	9·21	9·15	·01	·01	Under 10,000	Excess	16·20	18·30	Nil	Nil	34·50		Disqualified
7	—	—	56	3·7	3·4	3·55	8·65	8·87	8·76	·01	·01	Excess	Excess	14·20	17·52	Nil	2·50	34·22		Disqualified
4	—	—	60	3·4	4·2	3·80	8·90	9·05	8·975	·01	·01	Excess	Excess	15·20	17·95	Nil	Nil	33·15		Disqualified

CLASS III.

No. in Catalogue.	Daily Delivery of Milk			Fat Percentage			Solids-not-Fat Percentage			B. Coli Present		Freedom from Bacterial Contamination		Points					Awards	Remarks
	Morning	Evening	Total	Morning	Evening	Average	Morning	Evening	Average	Morning	Evening	Morning	Evening	Average Fat Percentage	Average Solids-not-Fat Percentage	B. Coli Present	Freedom from Bacterial Contamination	Total Points		
22	26	14	40	3·4	4·4	3·90	8·87	9·04	8·955	No	No	Under 20,000	Under 200,000	15·60	17·91	20·00	10·00	63·51	1st Prize	
13	13	11	24	3·2	3·1	3·15	8·62	8·80	8·71	No	No	Excess	Under 15,000	12·60	17·42	20·00	10·00	60·02	2nd Prize	
14	12	10	22	3·5	4·4	3·95	9·07	8·93	9·00	·1 one tube	·01	Under 15,000	Under 25,000	15·80	18·00	2·50	20·00	56·30	Award of Merit	Grade II
16	9	8	17	3·7	4·0	3·85	9·07	9·10	9·085	No	·01	Under 10,000	Excess	15·40	18·17	10·00	10·00	53·57	Award of Merit	Grade II
21	17	15	32	3·8	4·4	4·1	9·02	8·94	8·98	No	·01	Under 200,000	Under 100,000	16·40	17·96	10·00	7·50	51·86	Award of Merit	Grade II
17	20	16	36	4·1	4·6	4·35	8·94	8·85	8·895	·01	·01	Under 30,000	Excess	17·40	17·79	5·00	5·00	45·19	Award of Merit	Grade III
18	15	10	25	3·3	4·5	3·90	8·90	8·87	8·885	·1	·01	Under 100,000	Excess	15·60	17·77	5·00	5·00	43·37	Award of Merit	Grade III
19	17	13	30	3·6	4·2	3·90	8·93	8·90	8·915	·1	·01	Excess	Excess	15·60	17·83	5·00	Nil	38·43		Disqualified
20	17	13	30	3·0	4·9	3·95	9·03	8·81	8·92	·01	·01	Under 50,000	Excess	15·80	17·84	Nil	5·00	34·14		Disqualified
12	25	10	35	3·4	4·5	3·95	8·87	8·84	7·855	·01	·01	Excess	Excess	15·80	17·71	Nil	Nil	33·51		Disqualified
15	17	17	34	3·7	3·8	3·75	8·96	8·98	8·97	·01	·01	Excess	Excess	15·00	17·94	Nil	Nil	32·94		Disqualified

From the number of disqualifications attributable to the presence of B. Coli and other bacterial contaminations, it would appear that some farmers prefer to pasteurize the milk, so delaying the development of impurities, rather than take the trouble to see that the milk is taken from premises where cleanliness in every particular is the principal object.

The examination of the samples of milk was undertaken by Mr. S. F. Burford, F.I.C., Public Analyst, as regards chemical composition, and by Dr. W. W. Macherell for bacterial contamination. The arrangements for taking the samples of milk and for transmitting them to the experts were made by Dr. C. Killick Millard, Medical Officer of Health for the City of Leicester, assisted by Mr. F. G. McHugh, Chief Sanitary Inspector. To these gentlemen the thanks both of the Royal Agricultural Society and of the farmers competing in the trials are specially due.

MILK YIELD TRIALS

(CATTLE, CLASSES 241–254 INCLUSIVE).

Out of 164 entries 83 animals arrived in the Show ground to compete for the prizes offered in the milk yield classes, which, considering the prevalence of Foot and Mouth Disease, the large areas closed and the risks undertaken by the exhibitors, must be considered a very good entry. Out of this number 16 cows gave milk showing less than 3 per cent. fat on the average of the two milking as under :—

5	Dairy Shorthorns	out of an entry of	12
3	Lincolnshire Red	,, ,, ,,	7
1	Red Poll	,, ,, ,,	4
6	British Friesians	,, ,, ,,	16
1	Kerry	,, ,, ,,	4
16		,, ,, ,,	43

Had the disqualification been enforced on each separate milking the numbers would have been much higher as 43 cows gave milk in the morning's milking containing less than 3 per cent. fat as below :—

8	Dairy Shorthorns	out of an entry of	12
3	Non-pedigree Shorthorns	,, ,, ,,	5
7	Lincolnshire Red ,,	,, ,, ,,	7
2	Red Polls	,, ,, ,,	4
1	Blue Albion	,, ,, ,,	2
12	British Friesians	,, ,, ,,	16
2	Ayrshires	,, ,, ,,	4
1	Guernsey	,, ,, ,,	6
2	Jerseys	,, ,, ,,	17
3	Kerrys	,, ,, ,,	4
2	Dexters	,, ,, ,,	6
43		,, ,, ,,	83

I have called special attention to these figures as they tend to show that a good quantity of milk containing less than 3 per cent. fat must be sold to the public, a fact largely due to the craving for heavy milk records without any regard being had to the quality of the milk.

The Champion prizes offered at the four previous shows were again forthcoming, the prize winners being as below :—

A.—*For Cows of the Dairy Shorthorn, Lincolnshire Red Shorthorn, Devon, South Devon, Longhorn, Red Poll, and British Friesian Breeds.*

Champion Prize, £30.—1704 W. B. Robinson's British Friesian, **Felhampton Ariadne.**

Reserve Number, £5.—1693 G. Holt Thomas's British Friesian, **Kingswood Myrtle Leaf.**

B.—*For Cows of the Ayrshire, Jersey and Guernsey Breeds.*

Champion Prize, £20.—1813 James Howie's Ayrshire, **Friendlesshead Blossom 4th.**

Reserve Number, £5.—1811 William Gibson's Ayrshire, **Moorside Amelia.**

C.—*For Cows of the Kerry and Dexter Breeds.*

Champion Prize, £10.—2015 Kerry Estates Ltd. Kerry, **Valencia Eileen 3rd.**

Reserve Number, £5.—2054 W. Lindsay Everard's Dexter, **Gort Primula 7th.**

The Special Prize in Class 252 given by the Midland Counties Jersey Club for the Jersey Cow the property of a member of the M.C.J.C. giving the greatest weight of milk was won by :—

1935 Hon. Mrs. Murray Smith's "Lubenham May."

Table II gives the full report of the trials with the awards in each class.

Table III shows the average results of each breed.

TABLE II.—MILK-YIELD CLASSES AT LEICESTER, 1924.

No. in Catalogue	Exhibitor	Name of cow	Live weight	Date of birth	Date of last calf	No. of days in milk	Date of last Service	Total milk yield in 24 hours		Fat per-cent-age	Points				Awards and Remarks
											Milk	Fat per-cent. × 4	Lacta-tion	Total	
Class 241		*Dairy Shorthorns*	Lb.		1924		1924	Lb.	oz.						
1298	H. A. Brown	Lady Winsonia 2nd	1477	Feb. 12, 1916	May 28	36	—	48	12	2·875	48·75	11·50	Nil	60·25	Fat below Standard
1300	A. R. Fish	Combebank Johnby	1352	May 9, 1917	June 14	19	—	51	0	3·475	51·00	13·90	Nil	64·90	Fourth Prize
1306	Kingsclere Farms	Ashton Red Duchess	1339	Sept. 12, 1916	May 18	46	—	53	4	2·45	53·25	9·80	·60	63·65	Fat below Standard.
1315	J. G. Peel	Watercrook Rose	1208	Jan. 21, 1917	Apr. 29	65	—	61	12	3·775	61·75	15·10	2·50	79·35	First Prize
1331	W. L. Lea	Wily Woman 2nd	1473	July 22, 1918	May 26	38	—	44	12	3·575	44·75	14·30	Nil	59·05	
1335	Lt.-Col. R. and Mrs. M. Mostyn-Owen	Apley Proud Kirklevington	1437	Dec. 16, 1918	June 3	30	—	77	4	2·725	77·25	10·90	Nil	88·15	Fat below Standard.
1336	Lt.-Col. R. and Mrs. M. Mostyn-Owen	Rosette Prim 4th	1431	Feb. 17, 1919	May 26	38	—	45	8	4·075	45·50	16·30	Nil	61·80	
1341	Duke of Westminster	Monkhill Duchess 3rd	1327	Jan. 14, 1919	June 15	18	—	53	10	3·925	53·62	15·70	Nil	69·32	Third Prize
1345	Sir Clifford Cory, Bart., M.P.	Marchioness 85th	1344	May 20, 1920	Feb. 27	127	—	33	8	3·20	33·50	12·80	2·00	48·30	
1352	G. P. Golden	Lady Doreen 4th	1462	Feb. 5, 1920	May 31	33	—	73	4	2·40	73·25	9·60	Nil	82·85	Fat below Standard.
1357	J. Pierpont Morgan	Longhills Belle 2nd	1421	Jan. 13, 1920	June 7	26	—	59	0	3·025	59·00	12·10	Nil	71·10	Second Prize
1377	G. P. Golden	Lady Doreen 6th	1255	Feb. 18, 1921	May 22	42	—	59	4	2·325	59·25	9·30	·20	68·75	Fat below Standard.
Class 242		*Non-Pedigree Dairy Shorthorns*													
1399	Misses M. & E. Balfour	Poppy	1363	1917	Feb. 23	131	May 19	48	12	3·85	48·75	15·40	9·10	73·25	Second Prize
1402	Belgian Breeding Stock Farm Co., Ltd.	Spital	1529	—	June 17	16	—	38	8	3·475	38·50	13·90	Nil	52·40	
1403	H. A. Brown	Isabelle	1518	Feb. 18, 1918	Apr. 7	87	—	47	4	4·10	47·25	16·40	4·70	68·35	Fourth Prize
1404	Thomas Hatton	Polly	1460	—	Nov. 14 1923	232	Jan. 26	44	4	3·55	44·25	14·20	12·00	70·45	Third Prize
1406	J. L. Shirley	Maisie 2nd (Test not complete)	1525	—	—	—	—	—		—	—	—	—	—	—
1409	J. Pierpont Morgan	Empress 8th	1692	Mar. 10, 1919	June 4	29	—	61	0	3·825	61·00	15·30	Nil	76·30	First Prize
Class 243		*Lincolnshire Red Shorthorns*													
1434	Stanley Blundell	Bendish Ada 5th	1360	Dec. 7, 1917	June 7	26	—	66	8	2·75	66·50	11·00	Nil	77·5	Fat below Standard.
1435	Stanley Blundell	Bendish Charm 4th	1435	Aug. 26, 1918	May 26	38	—	56	4	2·90	56·25	11·60	Nil	67·85	Fat below Standard.
1436	J. O. Burchnall	Flamville Dairymaid 127th	1383	Feb. 28, 1917	May 23	41	—	57	12	3·10	57·75	12·40	·10	70·25	Third Prize.
					1924		1924								
1437	J. O. Burchnall	Flamville Dairymaid 191st	1196	Mar. 24, 1919	May 12	52	—	54	4	2·85	54·25	11·40	1·20	66·85	Fat below Standard.
1438	J. T. Cox	Foston No. 18	1372	Mar., 1917	May 5	59	—	55	0	3·325	55·00	13·30	1·90	70·20	Fourth Prize.
1447	Lt.-Col. Sir Archibald Weigall	Langford Polly 5th	1421	Sept., 1914	Apr. 20	74	—	64	4	3·30	64·25	13·20	3·40	80·85	Second Prize.

1448	Lt.-Col. Sir Archibald Weigall	Sibsey Rose	1362	Sept. 4, 1913	June 7	26	—	71	2	3·30	71·12	13·20	Nil	84·32	First Prize.
Class 247		*Red Poll*													
1532	Sir Albert E. Bowen, Bart.	Sudbourne Beige . . .	1400	Dec. 1, 1917	Jan. 3	182	Apr. 14	30	8	3·475	30·50	13·90	8·00	52·40	—
1540	W. R. Glazebrook, Jr.	Goessenhall Red Berry .	1237	July 14, 1911	June 6	27	—	65	12	3·325	65·75	13·30	Nil	79·05	Second Prize.
1545	S. Scrimgeour . .	Satterley Winsome . .	1260	Jan. 19, 1917	Apr. 30	64	—	78	4	3·45	78·25	13·80	2·40	94·45	First Prize.
1546	David Trembath .	Tendring Floss 29th . .	1416	Oct. 1, 1916	Mar. 30	95	—	54	4	2·95	54·25	11·80	5·00	71·05	Fat below Standard.
Class 248		*Blue Albion*													
1616	T. H. Swire & Sons	Mount Kitty	1406	—	May 5	59	—	45	12	3·70	45·75	14·80	1·90	62·45	—
1617	T. H. Swire & Sons	Mount Sweetheart . . .	1519	—	May 3	61	—	51	8	3·175	51·50	12·70	2·10	66·30	First Prize.
Class 249		*British Friesian*													
1679	A. & J. Brown .	Hedges Bles Juliana . .	1320	Dec. 10, 1919	Apr. 4	90	—	60	0	3·025	60·00	12·10	5·00	77·10	H.C.
1681	Seton de Winton .	Upminster Margarita . .	1430	Aug. 1, 1916	Mar. 26	99	May 11	66	8	2·775	66·50	11·10	5·90	83·50	Fat below Standard.
1684	Ethelbert Furness .	Hamels Ympca . . .	1604	Oct. 5, 1919	Apr. 30	64	—	49	0	2·80	49·00	11·20	2·40	62·60	Fat below Standard.
1691	G. Holt Thomas .	Brookside Bonnie Annie .	1486	Mar. 7, 1919	Mar. 30	95	June 20	59	4	3·375	59·25	13·50	5·50	78·25	Fifth Prize.
1692	G. Holt Thomas .	Colton Sunray	1548	Oct. 31, 1918	Mar. 22	103	June 20	56	8	3·95	56·50	15·80	6·30	78·60	Fourth Prize.
1693	G. Holt Thomas .	Kingswood Myrtle Leaf .	1692	Nov. 10, 1916	June 15	18	—	85	8	3·50	85·50	14·00	Nil	99·50	Second Prize and Reserve for Champion.
1694	John Horridge . .	Chaddesley Peggy . .	1378	Mar. 6, 1919	May 18	46	—	68	4	2·95	68·25	11·80	·60	80·65	Fat below Standard.
1695	John Horridge .	Sudbourne Daphne . .	1438	Aug. 17, 1920	May 29	35	—	65	4	2·875	65·25	11·50	Nil	76·75	Fat below Standard.
1697	H. M. Martineau .	Brooklands Princess Mary	1220	Nov. 22, 1918	Apr. 28	66	June 28	45	4	2·40	45·25	9·60	2·60	57·45	Fat below Standard.
1699	David Moseley . .	Elmham Echo	1327	Mar. 10, 1920	June 14	19	—	63	8	3·35	63·50	13·40	Nil	76·90	H.C.
1700	F. & T. Neame .	Macknade Elicit . . .	1529	July 20, 1919	Mar. 19	106	—	56	8	2·50	56·50	10·00	5·00	71·50	Fat below Standard
1701	F. & T. Neame .	Macknade Esther . . .	1494	May 3, 1918	June 12	21	—	65	8	3·40	65·50	13·60	Nil	79·10	Third Prize.
1704	W. B. Robinson . .	Felhampton Ariadne . .	1498	Nov. 20, 1918	May 22	42	—	88	12	3·50	88·75	14·00	·20	102·95	First Prize and Champion.
1706	W. & R. Wallace .	Inwood Princess Golden .	1442	May 26, 1918	May 26	38	—	65	4	3·05	65·25	12·20	Nil	77·45	H.C.
1709	W. & R. Wallace .	Pallinghurst Actress . .	1240	Jan. 2, 1917	June 9	24	—	50	0	3·275	50·00	13·10	Nil	63·10	H.C.
1715	W. H. R. Gilbert .	Trentham Bluebell . . .	1368	Sept. 15, 1921	Mar. 16	109	—	31	4	3·625	31·25	14·50	5·00	50·75	—
Class 250		*Ayrshires*													
1805	Thomas Barr . .	Hobsland Molly . . .	1158	Dec. 23, 1918	May 15	49	—	49	8	4·325	49·50	17·30	·90	67·70	H.C.
1810	William Gibson .	Moorside Achilles . . .	1064	May 23, 1918	June 2	31	—	55	4	3·30	55·25	13·20	Nil	68·45	Third Prize.
1811	William Gibson .	Moorside Amelia . . .	1053	May 18, 1917	June 8	25	—	61	0	3·75	61·00	15·00	Nil	76·00	Second Prize and Reserve for Champion.
1813	James Howie . .	Friendlesshead Blossom 4th	1185	Apr., 1913	June 3	30	—	70	0	3·575	70·00	14·30	Nil	84·30	1st Prize and Champion.
Class 251		*Guernseys*													
1841	A. Chester Beatty .	Chywoone Kerria . . .	1068	Apr. 16, 1916	Apr. 30	64	June 10	35	12	4·40	35·75	17·60	2·40	55·75	—
1842	A. Chester Beatty .	Lizette of St. Catherine .	1036	June 20, 1918	June 7	26	—	56	12	4·15	56·75	16·60	Nil	73·15	First Prize.
1846	Walter Dunkels .	Starlight Broom . . .	1061	Apr. 20, 1919	Mar. 8	117	June 3	40	0	5·20	40·00	20·80	7·70	68·50	Second Prize.
1848	Sir James Remnant, Bart., M.P.	Dene Treacle 2nd . . .	1030	Mar. 31, 1919	May 31	33	—	41	12	4.375	41·75	17·50	Nil	59·25	Fourth Prize

TABLE II.—MILK-YIELD CLASSES AT LEICESTER, 1924—*continued.*

No. in Catalogue	Exhibitor	Name of cow	Live weight	Date of birth	Date of last calf	No. of days in milk	Date of last Service	Total milk yield in 24 hours		Fat per-centage	Points				Awards and Remarks
											Milk	Fat per-cent. x 4	Lactation	Total	
Class 251		*Guernseys—continued*	Lb.		1924		1924	Lb.	oz.						
1850	E. J. Wythes	Engew Pansy	1110	Apr. 28, 1913	Apr. 4	90	—	45	0	3·975	45·00	15·90	5·00	65·90	Third Prize.
1858	Mrs. Jervoise	Herriard Dora 2nd	1030	Sept. 11, 1920	Apr. 20	74	—	25	12	3·70	25·75	14·80	3·40	43·95	—
Class 252		*Jerseys*													
1907	Mrs. Oswald Ames	Park Mayfire	788	May 4, 1917	Apr. 16	78	—	43	0	5·125	43·00	20·50	3·80	67·30	Fourth Prize.
1909	Mrs. G. J. Austin	Moulton Ruby	939	Sept. 2, 1920	Mar. 20	105	June 18	34	0	4·40	34·00	17·60	6·50	58·10	H.C.
1911	Grosvenor Berry	Golden Raspberry	820	Dec. 29, 1920	Feb. 9	145	May 2	40	12	4·80	40·75	19·20	10·50	70·45	Third Prize.
1912	Grosvenor Berry	Postage 2nd	863	Apr. 18, 1918	Mar. 16	109	June 18	36	0	5·30	36·00	21·20	6·90	64·10	H.C.
1927	James J. Hoyle	Beuvelande Diana	738	Aug. 29, 1920	May 17	47	—	27	12	5·675	27·75	22·70	·70	51·15	—
1930	J. Pierpont Morgan	Portia 2nd	902	Apr. 22, 1920	Apr. 7	87	—	29	0	4·075	29·00	16·30	4·70	50·10	—
1934	The Hon. Mrs. Murray Smith	Bayleaf's Violette	693	Oct. 19, 1920	Dec. 11	205	Feb. 21	22	0	4·975	22·00	19·90	12·00	53·90	H.C.
1935	The Hon. Mrs. Murray Smith	Lubenham May	816	Sept. 6, 1918	1923 Apr. 4	90	June 13	23	0	4·725	23·00	18·90	5·00	46·90	Special Prize.
1937	L. E. Tubbs	Oxlip	884	July 23, 1919	Apr. 30	64	—	55	8	3·825	55·50	15·30	2·40	73·20	Second Prize.
1940	R. Bruce Ward	Evergreen	859	Sept. 4, 1916	May 8	61	June 28	32	12	4·725	32·75	18·90	2·10	53·75	—
1941	R. Bruce Ward	Lena's Sultane Princess	956	Feb. 19, 1920	Mar. 16	109	June 24	25	12	4·60	25·75	18·40	6·90	51·05	—
1943	R. Bruce Ward	Progress	896	July 4, 1918	Feb. 9	145	Apr. 18	33	0	5·775	33·00	23·10	10·50	66·60	Fifth Prize
1944	R. Bruce Ward	Prometheus Queen	861	Nov. 20, 1919	Jan. 18	167	June 8	35	4	5·10	35·25	20·40	4·00	59·65	H.C.
1948	George Cross	Gloxalia 2nd	840	Mar. 19, 1921	Apr. 19	75	—	29	12	4·85	29·75	19·40	3·50	52·65	H.C.
1951	W. Vere Doughty	Surville Blonde's Fern	798	May 15, 1921	May 2	62	June 9	27	8	5·50	27·50	22·00	2·20	51·70	H.C.
1957	J. H. N. Roberts	Tidy Mabel	790	Sept. 2, 1921	Apr. 13	81	—	35	0	3·90	35·00	15·60	4·10	54·70	H.C.
1963	Grosvenor Berry	Post Mistress	808	Jan. 23, 1922	Jan. 16	169	Apr. 10	46	12	4·275	46·75	17·10	12·00	75·85	First Prize.
Class 253		*Kerrys*													
2015	Kerry Estates, Ltd.	Valencia Eileen 3rd	872	Mar. 14, 1916	Apr. 5	89	—	43	4	3·65	43·25	14·60	4·90	62·75	First Prize and Champion.
2017	Kerry Estates, Ltd.	Valencia Rosette	955	June 10, 1917	Mar. 27	98	June 27	27	8	3·325	27·50	13·30	5·80	46·60	—
2018	J. W. Towler	Gort Primrose 8th	931	Mar. 16, 1912	Apr. 22	72	—	28	8	2·525	28·50	10·10	3·20	41·80	Fat below Standard.
2019	J. W. Towler	Wadlands Constance	883	1919	May 16	48	—	33	4	3·30	33·25	13·20	·80	47·25	—
Class 254		*Dexters*													
2051	W. Lindsay Everard	Fillongly Farola	714	Oct. 23, 1917	May 31	33	—	30	0	3·55	30·00	14·20	Nil	44·20	Third Prize.
2052	W. Lindsay Everard	Fillongly Forest Fawn	580	July 19, 1919	June 5	28	—	25	4	4·05	25·25	16·20	Nil	41·45	—
2053	W. Lindsay Everard	Fillongly Forest Flower	616	Sept. 9, 1920	Apr. 22	72	—	20	0	4·625	20·00	18·50	3.20	41·70	—
2054	W. Lindsay Everard	Gort Primula 7th	690	Apr. 24, 1916	May 26	38	—	39	4	3·80	39·25	15·20	Nil	54·45	1st Prize and Reserve for Champion
2055	W. Lindsay Everard	Wingerworth Fan	802	March, 1915	June 2	31	—	40	0	3·125	40·00	12·50	Nil	52·50	Second Prize.
2058	W. Lindsay Everard	Brokenhurst Pansy	564	May 27, 1921	June 6	27	—	22	8	4·475	22·50	17·90	Nil	40·40	—

TABLE III.—*Average Results obtained by Cows of different Breeds in the Milk Yield Classes.*

No. of Cows competing	No. of Cows Entered	Breed	Live Weight	Days in Milk	Milk		Fat per cent.	Points
			Lb.		Lb.	oz.		
12	30	Dairy Shorthorn .	1369	43	55	1	3·152	67·95
5	10	Non-pedigree Dairy Shorthorn . .	1512	99	47	15	3·766	68·15
7	14	Lincolnshire Red Shorthorn . .	1347	45	60	11	3·360	73·97
—	2	Devon	—	—	—		—	—
—	1	South Devon . .	—	—	—		—	—
4	9	Red Poll . . .	1328	92	57	3	3·300	74·23
2	4	Blue Albion . .	1462	60	48	0	3·437	64·375
16	25	British Friesian .	1450	61	61	0	3·146	82·26
4	8	Ayrshire . . .	1115	34	58	15	3·740	74·11
6	11	Guernsey . . .	1056	66	40	12	4·300	61·08
17	32	Jersey	838	105	33	15	4·800	58·83
4	8	Kerry	910	77	33	2	3·200	49·60
6	8	Dexter	661	38	29	8	3·937	45·78

1 Non-pedigree Dairy Shorthorn was unable to complete the trials owing to a chill and is therefore not dealt with in the breed averages.

BUTTER TESTS (CLASSES 255A & B).

Only 58 animals out of an entry of 112 were present to compete for the butter tests, this no doubt being due to the prevalence of Foot and Mouth Disease. Of these 58 animals 16 received no award as their milk showed a butter ratio of over 30 lbs. as follows:—

5 Dairy Shorthorns out of 12 received no award.
4 Lincoln Red Shorthorns „ „ 5 „ „ „
6 British Friesians „ „ 12 „ „ „
1 Kerry „ „ 1 „ „ „

The cattle were all weighed on Tuesday evening, July 1, and divided into two classes, A and B: A, exceeding 900 lbs.; B, not exceeding 900 lbs. live weight. All cows were milked out and stripped at 5 p.m. on Wednesday, July 2.

Full details of the trials are given in Table IV and the average results obtained by the various breeds in Table V.

Table IV.—RESULTS of BUTTER TESTS at LEICESTER, 1924.

Class 255a.—COWS EXCEEDING 900 LB. LIVE WEIGHT.

No. in Catalogue	Exhibitor	Name of cow	Breed	Live weight	Date of birth	Date of last calf	No. of days in milk	Date of last service	Milk yield in 24 hours	Butter yield	Butter ratio*	No. of points for butter	No. of points for period of lactation	Total No. of points	Awards
				Lb.		1924		1924	Lb. oz.	Lb. oz.					
1306	Kingsclere Farms	Ashton Red Duchess	Dairy Shorthorn	1339	Sept. 12, '16	May 18	46	—	53 4	1 4¼	42·07	20·25	·60	20·85	Ratio over 30
1315	J. G. Peel	Watercrook Rose	Dairy Shorthorn	1208	Jan. 21, '17	Apr. 29	65	—	61 12	2 8½	24·39	40·50	2·50	43·00	H.C.
1331	W. L. Lea	Wily Woman 2nd	Dairy Shorthorn	1473	July 22, '18	May 26	38	—	44 12	1 8¾	28·92	24·75	Nil	24·75	—
1335	Lt.-Col. R. and Mrs. M. Mostyn-Owen	Apley Proud Kirkevington	Dairy Shorthorn	1437	Dec. 16, '18	June 3	50	—	77 4	2 0¼	38·03	32·50	Nil	32·50	Ratio over 30
1336	Lt.-Col. R. and Mrs. M. Mostyn-Owen	Rosette Prim 4th	Dairy Shorthorn	1431	Feb. 17, '19	May 26	38	—	45 8	2 2¼	21·25	34·25	Nil	34·25	—
1341	Duke of Westminster	Monkhill Duchess 3rd	Dairy Shorthorn	1327	Jan. 14, '19	June 15	18	—	53 10	2 4¼	23·60	36·25	Nil	36·25	H.C.
1345	Sir Clifford Cory, Bart.	Marchioness 85th	Dairy Shorthorn	1344	May 20, '20	Feb. 27	127	—	33 8	1 9¼	21·22	25·25	2·00	27·25	—
1352	G. P. Golden	Lady Doreen 4th	Dairy Shorthorn	1462	Feb. 5, '20	May 31	33	—	73 4	1 5½	54·50	21·50	Nil	21·50	Ratio over 30
1357	J. Pierpont Morgan	Longhills Belle 2nd	Dairy Shorthorn	1421	Jan. 13, '20	June 7	26	—	59 0	1 11¾	34·01	27·75	Nil	27·75	Ratio over 30
1367	Major S. P. Yates	Sorbrook Foggathorpe	Dairy Shorthorn	1385	May 15, '20	May 21	43	—	54 4	2 0½	26·70	32·50	·30	32·80	H.C.
1377	G. P. Golden	Lady Doreen 6th	Dairy Shorthorn	1255	Feb. 18, '21	May 22	42	—	59 4	1 4½	46·20	20·50	·20	20·70	Ratio over 30
1398	Major S. P. Yates	Sorbrook Rosamond	Dairy Shorthorn	1331	Feb. 7, '21	June 8	25	—	42 10	1 8¼	28·12	24·25	Nil	24·25	—
1409	J. Pierpont Morgan	Empress 8th	Non-Ped. Dy. Shorthorn	1692	Mar. 10, '19	June 4	29	—	61 0	2 8½	24·09	40·50	Nil	40·50	H.C.
1434	Stanley Blundell	Bendish Ada 5th	Lincoln Red	1360	Dec. 7, '17	June 7	26	—	66 8	1 12	38·00	28·00	Nil	28·00	Ratio over 30
1435	Stanley Blundell	Bendish Charm 4th	Lincoln Red	1435	Aug. 26, '18	May 26	38	—	56 4	1 9	36·00	25·00	Nil	25·00	Ratio over 30
1436	J. O. Burchnall	Flamville Dairymaid 127th	Lincoln Red	1383	Feb. 28, '17	May 23	41	—	57 12	1 14¾	30·04	30·75	·10	30·85	Ratio over 30
1447	Lt.-Col. Sir Archbd. Weigall	Langford Polly 5th	Lincoln Red	1421	Sept., 1914	Apr. 20	74	—	64 4	2 0¾	31·30	32·75	3·40	56·15	Ratio over 30
1448	Lt. Col. Sir Archbd. Weigall	Sibsey Rose	Lincoln Red	1362	Sept. 4, '13	June 7	26	—	71 2	2 6	29·90	38·00	Nil	38·00	H.C.
1545	S. Scrimgeour	Sotterley Winsome	Red Poll	1260	Jan. 19, '17	Apr. 30	64	—	78 4	2 14½	26·92	46·50	2·40	48·90	Second Prize
1679	A. & J. Brown	Hedges Bles Juliana	British Friesian	1320	Dec. 10, '19	Apr. 4	90	—	60 0	1 15¼	30·72	31·25	5·00	36·25	Ratio over 30
1684	Ethelbert Furness	Hamels Ympca	British Friesian	1604	Oct. 5, '19	Apr. 30	64	—	49 0	1 6¼	34·84	22·50	2·40	24·90	Ratio over 30
1691	G. Holt-Thomas	Brookside Bonnie Annie	British Friesian	1486	Mar. 7, '19	Mar. 30	95	June 20	59 4	1 14½	31·08	30·50	5·50	36·00	Ratio over 30
1692	G. Holt-Thomas	Colton Sunray	British Friesian	1548	Oct. 31, '18	Mar. 22	103	June 20	56 8	2 5½	24·10	37·50	6·30	43·80	Fifth Prize
1693	G. Holt-Thomas	Kingswood Myrtle Leaf	British Friesian	1692	Nov. 10, '16	June 15	18	—	85 8	3 4¼	26·10	52·25	Nil	52·25	First Prize
1699	David Moseley	Elmham Echo	British Friesian	1327	Mar. 10, '20	June 14	19	—	63 8	2 4¼	28·02	36·25	Nil	36·25	H.C.
1700	F. & T. Neame	Macknade Elicit	British Friesian	1529	July 20, '19	Mar. 19	106	—	56 8	1 6¾	39·73	22·75	5·00	27·75	Ratio over 30
1701	F. & T. Neame	Macknade Esther	British Friesian	1494	May 3, '18	June 12	21	—	63 8	2 7	26·87	39·00	Nil	39·00	H.C.
1702	Sydney Pyman	Felhampton Susan	British Friesian	1445	Oct. 3, '15	May 25	39	—	77 0	3 0	25·66	48·00	Nil	48·00	Third Prize

1704	Walter B. Robinson	Felhampton Ariadne	British Friesian	1498	Nov. 20, '18	May 22	42	—	88 12	2 15	30·21	47·00	·20	47·20	Ratio over 30
1706	W. & R. Wallace	Inwood Princess Golden	British Friesian	1442	May 26, '18	May 26	38	—	65 4	1 14¼	34·51	30·25	Nil	30·25	Ratio over 30
1709	W. & R. Wallace	Pallinghurst Actress	British Friesian	1240	Jan. 2, '17	June 9	24	—	50 0	1 11½	29·09	27·50	Nil	27·50	—
1813	James Howie	Friendlesshead Blossom 4th	Ayrshire	1185	Apr., 1913	June 3	30	—	70 0	2 13¼	24·75	45·25	Nil	45·25	Fourth Prize
1842	A. Chester Beatty	Lizette of St. Catherine	Guernsey	1036	June 20, '18	June 7	26	—	56 12	2 8¼	22·55	40·25	Nil	40·25	H.C.
1843	A. Chester Beatty	Moss Rose of Duvaux	Guernsey	1021	Nov. 22, '17	Apr. 28	66	—	29 0	1 4½	22·63	20·50	2·60	23·10	—
1846	Walter Dunkels	Starlight Broom	Guernsey	1061	Apr. 20, '19	Mar. 8	117	June 3	40 0	2 2¼	18·68	34·25	7·70	41·95	H.C.
1848	Sir James Remnant, Bart.	Dene Treacle 2nd	Guernsey	1030	Mar. 31, '19	May 31	33	—	41 12	2 0¼	20·71	32·25	Nil	32·25	—
1858	Mrs. F. H. T. Jervoise	Herriard Dora 2nd	Guernsey	1030	Sept. 11, '20	Apr. 20	74	—	25 12	1 1¼	22·53	17·75	3·40	21·15	—
1909	Mrs. G. J. Austen	Moulton Ruby	Jersey	939	Sept. 2, '20	Mar. 20	105	June 18	34 0	1 9¾	21·12	25·75	6·50	32·25	Cert. of Merit.
1910	Mrs. G. J. Austen	Xenia's Clover	Jersey	966	Apr. 26, '20	Apr. 5	69	—	36 4	1 12¼	20·53	28·25	4·90	33·15	Cert. of Merit.
1930	J. Pierpont Morgan	Portia 2nd	Jersey	902	Apr. 22, '20	Apr. 7	87	—	29 0	1 4½	22·63	20·50	4·70	25·20	—
1941	R. Bruce Ward	Lena's Sultane Princess	Jersey	956	Feb. 19, '20	Mar. 16	109	June 24	25 12	1 5¼	19·38	21·25	6·90	28·15	—
2018	J. W. Towler	Gort Primrose 8th	Kerry	931	Mar. 16, '12	Apr. 22	72	—	28 8	0 12¾	35·76	12·75	3·20	15·95	Ratio over 30

Class 255b.—COWS NOT EXCEEDING 900 LB. LIVE WEIGHT.

				Lb.		1924		1924	Lb. oz.	Lb. oz.					
1907	Mrs. Oswald Ames	Park Mayfire	Jersey	788	May 4, '17	Apr. 16	78	—	43 0	1 15	22·19	31·00	3·80	34·80	—
1908	Mrs. G. J. Austen	Chassis	Jersey	861	Feb. 6, '18	May 16	48	—	41 12	2 1	20·24	33·00	·80	33·80	
1911	Grosvenor Berry	Golden Raspberry	Jersey	820	Dec. 29, '20	Feb. 9	145	May 2	40 12	2 5½	17·38	37·50	10·50	48·00	First Prize and Gold Medal
1912	Grosvenor Berry	Postage 2nd	Jersey	863	Apr. 18, '18	Mar. 16	109	June 18	36 0	2 0½	17·72	32·50	6·90	39·40	Fourth Prize
1927	James J. Hoyle	Beuvelande Diana	Jersey	738	Aug. 29, '20	May 17	47	—	27 12	1 8¼	18·30	24·25	·70	24·95	—
1934	The Hon. Mrs. Murray Smith	Bayleaf's Violette	Jersey	693	Oct. 19, '20	Dec. 11 1923	205	Feb. 21	22 0	1 5¼	16·56	21·25	12·00	33·25	Cert. of Merit and Special Prize
1935	The Hon. Mrs. Murray Smith	Lubenham May	Jersey	816	Sept. 6, '18	Apr. 4	90	June 13	23 0	1 4¼	18·17	20·25	5·00	25·25	—
1937	L. E. Tubbs	Oxlip	Jersey	884	July 23, '19	Apr. 30	64	—	55 8	2 3¾	24·83	35·75	2·40	38·15	Fifth Prize
1943	R. Bruce Ward	Progress	Jersey	896	July 4, '18	Feb. 9	145	April 18	33 0	2 1	16·00	33·00	10·50	43·50	Third Prize and Bronze Medal
1944	R. Bruce Ward	Prometheus Queen	Jersey	861	Nov. 20, '19	Jan. 18	167	June 8	35 4	1 14	18·80	30·00	4·00	34·00	Cert. of Merit.
1948	George Cross	Gloxalia 2nd	Jersey	840	Mar. 19, '21	Apr. 19	75	—	29 12	1 8	19·83	24·00	3·50	27·50	—
1951	W. Vere Doughty	Surville Blondes Fern	Jersey	798	May 15, '21	May 2	62	June 9	27 8	1 9½	17·25	25·50	2·20	27·70	—
1957	J. H. N. Roberts	Tidy Mabel	Jersey	790	Sept. 2, '21	Apr. 13	81	—	35 0	1 8½	22·85	24·50	4·10	28·60	—
1963	Grosvenor Berry	Post Mistress	Jersey	808	Jan. 23, '22	Jan. 16	169	Apr. 10	46 12	2 2¼	21·83	34·25	12·00	46·25	Second Prize and Silver Medal
1976	J. H. N. Roberts	Fly Cowslip	Jersey	674	May 17, '22	Mar. 27	98	June 23	16 12	13½	19·85	13·50	5·80	19·30	—
2019	J. W. Towler	Wadlands Constance	Kerry	883	1919	May 16	48	—	33 4	1 3¼	27·63	19·25	·80	20·05	—

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* The "Butter ratio" represents the number of lb. of milk required to make 1 lb. of butter. Ten lb. of milk are reckoned as equal to an imperial gallon.

TABLE V.—*Average Results obtained with the Cows in the Butter Test Classes.*

CLASS 255A.—EXCEEDING 900 lb. LIVE WEIGHT.

No. of Cows Competing.	Breed	Live weight	Days in milk	Milk		Butter yield		Ratio	Total Points
		Lb.		Lb.	oz.	Lb.	oz.	Lb.	
12	Dairy Shorthorns . .	1367	45	54	13	1	12¼	32·41	28·82
1	Non-Pedigree Shorthorn	1692	29	61	0	2	8½	24·09	40·50
5	Lincoln Red Shorthorns	1392	41	63	3	1	15¼	33·05	31·60
1	Red Poll	1260	64	78	4	2	14½	26·92	48·90
12	British Friesians . .	1468	55	63	15	2	3½	30·07	36·51
1	Ayrshire	1185	30	70	0	2	13¼	24·75	45·25
5	Guernseys	1035	63	38	7	1	13	21·42	31·74
4	Jerseys	940	97	31	4	1	7¾	20·91	29·62
1	Kerry	931	72	28	8	0	12¾	35·76	15·95

CLASS 255B.—NOT EXCEEDING 900 lb. LIVE WEIGHT.

15	Jerseys	808	105	34	4	1	12	19·45	33·63
1	Kerry	883	48	33	4	1	3¼	27·63	20·05

T. W. ASHTON.

Estate Office,
Hursley Park,
Winchester.

TABLE VI.—MILK-YIELD CLASSES FOR GOATS AT LEICESTER, 1924.

No. in Catalogue	Exhibitor	Name of goat	Breed	Date of birth	Date of last kid	No. of days in milk	Milk yield			Percentage of Fat		Percentage of Solids not Fat		Points						Awards and Remarks
							Morn.	Even.	Total	Morn.	Even.	Morn.	Even.	Milk	Fat lb.	Solids not Fat	Lactation	Deduction	Total	
							lb. oz.	lb. oz.	lb. oz.											
	CLASS 266.																			
2071	Miss Henderson	Riding Cherry	Toggenburg	Mar. 9, 1919	Mar. 16. 1924	109	6 2	5 5	11 7	2·60	3·10	8·16	8·26	11·43	6·47	3·75	1·10	1	21·75	—
2073	Miss Henderson	Vertue	Toggenburg	unknown	May 30, 1924	34	3 15	3 11	7 10	2·85	3·40	8·71	8·57	7·62	4·74	2·63	0·00	1	13·99	—
2079	Miss K. Pelly	Theydon Beauty	Anglo Nubian	Mar. 13, 1920	May 9, 1924	55	3 10	3 11	7 5	5·90	5·85	9·19	9·31	7·31	8·58	2·70	·20	—	18·79	Reserve Pomeroy Cup.
2080	Miss K. Pelly	Theydon Annette	Anglo-Nubian	May 6, 1920	May 24, 1924	40	3 4	3 1	6 5	4·50	5·10	9·41	9·28	6·31	6·05	2·36	0·00	—	14·72	—
2081	Miss K. Pelly	Nash Bellona	Anglo-Nubian	Mar. 25, 1920	Mar. 30, 1924	95	4 1	3 7	7 8	6·00	5·35	9·34	9·08	7·50	8·54	2·77	·90	—	19 71	Pomeroy Challenge Cup.
2082	Miss K. Pelly	Theydon Angela	Anglo-Nubian	May 6, 1920	May 7, 1924	57	3 1	2 5	5 6	5·60	6·10	9·26	9·23	5·37	6·25	1·98	·20	—	13.80	—
2084	Mrs. Abbey	Didgemere Dawdler	British Alpine	June 1, 1921	Feb. 26, 1924	128	7 6	5 0	12 6	4·20	3·90	8·48	8·54	12·37	10·09	4·21	1·40	—	28·07	Third Dual Purpose Challenge Certificate, Reserve for Dewar Trophy.
2085	Mrs. Abbey	Didgemere Delilah	British Alpine	Mar. 19. 1922	Mar. 1, 1924	124	6 13	4 11	11 8	4·00	3·75	8·56	8·64	11 50	8·96	3·95	1·40	—	25·81	R.
2088	Miss Henderson	Riding Thistledown	British Alpine	Apr. 8, 1922	Mar. 9, 1924	116	4 2	3 7	7 9	3·45	3·55	8·33	8·47	7·56	5·28	2·53	1·20	—	16·57	—
2089	Mrs. Hines	Beechmead Dolly	British Toggenburg	Feb. 14, 1921	Mar. 6, 1924	119	5 12	4 10	10 6	3·85	3·30	8·53	8·30	10·37	7·48	3·49	1·30	—	22·64	C.
2090	Mrs. Hines	Beachmead Girlie	British Toggenburg	Feb. 16, 1922	Apr. 5, 1924	89	5 5	4 11	10 0	3·70	4·20	8·75	8·85	10·00	7·86	3·52	·80	—	22·18	C.
2091	Mrs. Potton	Empress March	British Toggenburg	March, 1919	Apr. 8, 1924	86	9 2	6 1	15 3	3·65	2·90	7·62	7·72	15·18	10·17	4·65	·70	1	29·70	First.
2092	Mrs. Potton	Rayleigh Countess	British Toggenburg	Mar. 20, 1922	May 17, 1924	47	5 12	4 10	10 6	3·40	3·40	8·82	8·94	10·37	7·05	3·68	·10	—	21·20	—
2093	Mrs. Potton	Rayleigh Dancer	British Toggenburg	Mar. 2, 1922	Apr. 11, 1924	83	6 4	4 10	10 14	3·80	3·40	9·15	9·07	10·87	7·89	3·97	·70	—	23·43	H.C.
2094	Mrs. Potton	Rayleigh Queen	British Toggenburg	Mar. 20, 1922	Mar. 20, 1924	105	5 10	4 10	10 4	2·65	2·90	8·42	8·47	10·25	5·66	3·46	1·00	2	18·37	—
2097	Mrs. Abbey	Didgemere Dancer	Anglo-Nubian Swiss	Mar. 12, 1921	Feb. 5, 1924	149	4 6	3 9	7 15	4·60	4·85	8·81	8·23	7·93	7·47	2·62	1·80	—	19·82	—
2101	Baroness Burton	Edette	Anglo-Nubian Swiss	Mar. 6, 1921	Mar, 7, 1924	118	4 12	4 8	9 4	4·55	4·90	9·30	8·99	9·25	8·73	3·39	1·30	—	22·67	C.
2102	Miss Henderson	Riding Topsy 2nd	Anglo-Nubian Swiss	Apr. 19, 1920	Apr. 13, 1924	81	6 6	5 12	12 2	3·60	4·15	9·36	8·47	12·12	9·36	4·33	·60	—	26·41	Fifth.
2104	Mrs. Hines	Beechmead Snow	Anglo-Nubian Swiss	Mar. 9, 1922	Mar. 22, 1924	103	5 7	4 10	10 1	3·80	3·70	8·90	8·88	10·06	7·55	3·57	1·00	—	22·18	C.
2105	Mrs. Moroom	Leazes Fortitude	Anglo-Nubian Swiss	Mar. 14, 1919	Feb. 14 1924	140	7 10	5 14	13 8	3·30	3·30	8·42	8·42	13·50	8·90	4·55	1·60	—	28·55	Second, Dewar Trophy.
2106	Mrs, Potton	Rayleigh Princess	Anglo-Nubian Swiss	Feb. 24, 1922	Apr. 7, 1924	87	7 4	5 3	12 7	3·90	3·40	8·67	8·82	12·43	9·18	4·34	0·70	—	26·65	Fourth
2107	Mrs. Potton	Zena	Anglo-Nubian Swiss	Jan. 17, 1922	Mar. 19, 1924	106	5 11	4 14	10 9	4·40	3·50	9·02	9·34	1056	8·41	3·87	1·10	—	23·94	H.C.
2108	Mrs. J. C. Straker	Leazes Fidelia	Cross-bred	May 9, 1920	Feb. 28, 1924	126	4 6	4 4	8 10	3·40	3·80	7·94	7·90	8·62	6·20	2·73	1·40	—	18·95	—

Dewar Cup to Mrs. Abbey with 2084 Didgemere Dawdler and 2119 Didgemere Dream.

EXPERIMENTS IN THE DAIRY.

CHEESE EXPERIMENTS.

As at the Derby, Cambridge and Newcastle Shows, experiments in making cheese from the milks of different breeds of cattle were carried out in the Dairy at Leicester, the types of cheeses selected being Leicester and Wensleydale.

Tables VII and VIII give the details connected with the making of the cheese, which were subsequently sent to the Staffordshire Farm Institute at Penkridge, where they were looked after by Miss E. Noble, the County Dairy Instructress.

The supply of milk this year was most uncertain owing to the Foot and Mouth restrictions, and in the Leicester cheese experiment it will be noted that only seventeen gallons of Lincoln Red Shorthorn milk was used, this being the total amount procurable at the time.

An experiment was also carried out in the making of Wensleydale Cheese from different breeds of milk, the breeds selected being Jersey, Guernsey and Ayrshire. Six gallons of milk were taken from the afternoon's and six from the morning's milk. The same dairymaid was responsible for the three cheeses.

Table VIII gives the full details of the experiment.

TABLE VII.—PARTICULARS OF YIELD OF LEICESTER CHEESE FROM THE MILK OF VARIOUS BREEDS.

Date	Breed	Quantity of Milk	Fat Per-centage	Weight of Curd in lbs.	Quality of Curd.	Weight from Press	Weight of Cheese when ripe	Loss in Weight	Remarks
June 30	Friesian	galls. 20	3·15	22	Good	21	17½	3½	Quality very good. Flavour good. Texture open.
July 1	Shorthorn	20	3·45	24½	Good	21½	18	3½	Quality very good. Flavour very good. Texture firm and silky.
„ 2	Red Poll	20	3·8	23	Poor	21¾	18½	3¼	Quality fair. Flavour fair. Texture rather close.
„ 2	Jersey	20	5·25	29	Fair	27	23½	3½	Quality very good. Flavour fair. Texture firm and close.
„ 3	Lincoln Red	17	2·75	19	Rather harsh	17	13½	3½	Quality fair. Flavour good. Texture firm and close.

TABLE VIII.—PARTICULARS OF YIELD OF WENSLEYDALE CHEESE FROM THE MILK OF VARIOUS BREEDS.

Date	Breed	Quantity of Milk	Fat Percentage	Weight of Curd.		Quality of Curd.	Weight from Press		Weight of Cheese when ripe		Loss in Weight		Remarks.
		galls.		lb.	oz.		lb.	oz.	lb.	oz.	lb.	oz.	
July 1	Jersey	12	5·15	19	10	Good and rich	17	5	12	0	5	5	Quality very good, inclined to be firm. Flavour very good. Slow in blue veining.
,, 2	Guernsey	12	4·9	17	10	Badly tainted	16	5	13	4	3	1	Quality very good. Flavour much improved. Blue veining throughout.
,, 3	Ayrshire	12	*	16	5	Good	14	14	10	0	4	14	Quality excellent. Flavour very good. Blue veining throughout.

* The fat percentage in this case was unfortunately omitted.

As in previous years, the manufacture of scalded cream and soft cheeses and cheese mixture was carried out throughout the week. To this must be added the milking trials and butter tests, which gave the staff of the Dairy a large amount of work on this occasion, when the valuable assistance of Messrs. Hammond and Crawford was greatly missed. To all the workers, to the Assistant Stewards, to Mr. Hasted, and to Mr. T. Hammond, Junr., I tender my most sincere thanks.

T. W. Ashton.

Estate Office,
Hursley Park,
Winchester, Hants.

AGRICULTURAL EDUCATION EXHIBIT, LEICESTER, 1924.

No visitor to the Leicester Show can have failed to be impressed by the great importance which is attached at the present time to Agricultural Education. In attempting to display exhibits of this nature there are several questions of general policy which have to be considered, and among them that of deciding whether it is preferable to concentrate all the educational exhibits, more or less, in a single place, as has been the practice at previous Shows, or to disperse them about the grounds, as was done at Leicester.

It may well be argued that by this latter method many of those matters which are in the forefront of agricultural progress are forced into the notice of practically every visitor to the ground. It would indeed be short-sighted to under-estimate the value of the numerous illustrations, for example, of clean milk production, which were to be found in many different places in the Showground. But, on the other hand, it cannot be denied that such a plan usually involves considerable dissipation of energy in that the same facts are placed before the public by more than one Institution. It is certainly most desirable that all members of the community should appreciate the difference between clean milk and dirty, but this alone is not sufficient. At this stage the really practical interest lies in whether the producer can afford to supply clean milk, and the consumer to pay for it, and, although in three or four different places in the Show there were rows of sterilized plates showing the bacterial content of various samples of milk, photographs of clean milkers and of cows being washed and so forth, each of the exhibitors refrained from completing the picture by adding a statement as to cost. Had one Institution alone definitely undertaken to deal with this department, it could have devoted all its attention to covering the whole of this vital question, not omitting the all-important question of profit and loss, whilst other exhibitors with the additional energy thus liberated could have applied themselves to other important matters on a more comprehensive scale than was possible under the conditions obtaining at Leicester. To say so much is not to decry the admirable work of this year's exhibitors, but only to point out that, through lack of co-operation, there was in most cases a certain impression of overlapping.

Speaking generally, the Educational exhibits at the Leicester Show do not suffer at all by comparison with former years; and there were several additional features of great merit, which it is hoped will be repeated in future. Especially noteworthy in this respect were the striking display of fleeces and wool products by Leeds University, and the botanical garden and model allotment shown by the Leicester County Council.

The items selected for display were very numerous, and covered a wide field.

The *National Institute of Agricultural Botany at Cambridge* had a useful and convincing chart, illustrating the reduction in the number of parishes newly infected by wart disease since 1917. The figures are sufficiently cogent to bear repetition, and they are given below:—

	Parishes infected.
1917	approximately 270
1918	„ 275
1919	„ 200
1920	„ 80
1921	„ 30
1922	„ 40
1923	„ 12

Simple diagrams of this nature should do much to dispel the illusions of the sceptical farmer as to the value of scientific investigation, made effective by control measures of an able administrative department.

The skilful and unremitting labours of Professor Sir Rowland Biffen were evidenced by a few plants of his *Yeoman II* Wheat, which will be available for sowing in the autumn of 1924, and which, it is claimed, combines all the merits of the original *Yeoman* with even better milling qualities. Here again the general farmer has reason to be grateful to his scientific friends, though he would probably say with some justice that with the present relation between the prices of hard and soft wheats his most urgent need is for the seed that will yield him the largest crop, be the quality what it may.

The remarks that have already been made about clean milk would apply equally to the exhibits of seed-testing, with the additional comment that, owing to the fact that the stalls of the leading seedsmen usually include demonstrations of this nature, the educational institutes might well consider the possibility of omitting them altogether.

The *Rothamsted* section was of absorbing interest to the scientifically-minded observer, but the farmer undoubtedly failed to feel the same attraction. This exhibit might almost be described as an epitome of pure as opposed to applied agricultural science. The effect of fertilizers on the yield of various crops was well illustrated by model corn-ricks and clamps, the effects of lucerne inoculation and boron as a factor in healthy plant growth were considered, and the effect of the chalking of land on the drawbar-pull of farm implements was indicated. No pains had been spared in the attempt to make these exhibits attractive, and any failure in this respect was to be attributed to a lack of appreciation of the kind of question which immediately presents itself to the mind of the interested visitor. What, for instance, does inoculation for lucerne consist of ? Under what circumstances is it necessary or advisable ? How does one set about it ? And, above all, what does it cost ? These were questions which, as far as the printed explanations were concerned, were left unanswered, and it should not be forgotten that, although there are nearly always stewards present, who are anxious to answer all inquiries with the utmost courtesy and readiness, yet many people refrain from displaying their apparent ignorance by asking for explanations beyond those which are set out on the labels.

The same well-intentioned criticism may be made of the exhibit staged by the *Animal Breeding Research Department at Edinburgh* together with the *Department of Agriculture at the University of North Wales*, which made no attempt at window-dressing. There was just sufficient material on the benches to act as a text on which the representatives of these Institutes could base their remarks to those who cared to listen. One of the ultimate aims of these departments is to unravel the genetics of wool, with the view of evolving a sheep in which the factors for the production of the best mutton will be combined with those which will yield the most valuable wool. This is indeed an ambitious task, and it is a long and difficult road which must be travelled before any considerable measure of success can be attained. At present Dr. Crew and his staff are contented, and quite rightly so, to forego the temptation of short cuts, and to explore the field thoroughly by investigating such clear-cut hereditary factors as are already known to exist in sheep, in the hope that eventually sufficient light may be thrown on the more intricate and delicate problems connected with wool. In the meantime every endeavour is being made to arrive at a common vocabulary, which shall be intelligible both to the dealer, the manufacturer and the sheep farmer, who judge wool by the touch, and to the scientist engaged in breeding, who relies on microscopic examination of the fibres. Of even greater importance is the fact that opportunities are taken whenever possible to draw the attention of students passing through these Universities to problems of genetics. In this way it is hoped that many prospective farmers will be sufficiently intrigued by the fascinating study of problems of this nature to bring to light any irregularities in their flocks with a view to their investigation, a course of action which, for obvious reasons, does not always commend itself to the practical sheep farmer.

As might be expected at Leicester, the largest exhibit in the Education Tent was that of the *Midland Agricultural and Dairy College*. Here were to be found items of great value both to those engaged in agricultural education, and to the practical farmer. Turves of various permanent seeds mixtures were accompanied by labels showing the composition of the mixtures, and their cost. Experimental rations for feeding pigs were given, together with samples of the bacon produced, the live weight increase in the pigs, and the cost of the different rations. Another chart, reproduced on p. 355, showed the limit of profitable manuring for potatoes.

Information in this form cannot fail to appeal with great force to the practical farmer, and it is a matter of some surprise that other exhibitors do not present their results on similar lines.

What is probably an innovation so far as the Royal Show is concerned was provided by charts showing the weekly distribution of labour on three typical farms. The principles of farm labour organization would probably have been more clearly demonstrated without so much detail, but the seasonal variations in requirements were clearly shown. Nevertheless, there is no doubt that the whole of the exhibit from Sutton Bonington deserves special commendation, not only as to the material, and the way in which it was displayed, but also, and more particularly, as showing the development of the economic sense in agricultural educational work.

The main item of interest brought to the notice of the public by the *National Institute for Research in Dairying, Reading*, was the success which is attending the efforts, which have recently been in progress there, for the better utilization of whey. It is not commonly appreciated that on a rough estimate for Great Britain alone there is a loss every year of 50 million gallons of whey, in which are to be found nearly 50 per cent. of the total solids contained in the milk from which it is derived, and the value of which, if taken at the market price of the substances

THE MIDLAND AGRICULTURAL AND DAIRY COLLEGE—SUTTON BONINGTON, LOUGHBOROUGH.

MAXIMUM PROFITABLE MANURING OF POTATOES—COLLEGE FARMS, 1921–1923.

Dressing per Acre, 12 tons Dung in each Case, with	Yield per Acre, 3 Years' Average.	Increase or Decrease in Yield with Artificials above 6 cwt. Dressing.	Effect upon Nett Income per Acre if the Potatoes are Sold.																			
			at £2 per ton.				at £5 per ton.				at £8 per ton.				at £10 per ton.				at £12 per ton.			
				£	s.	d.		£	s.	d.		£	s.	d.		£	s.	d.		£	s.	d.
6 cwt. Artificials	14 tons 12 cwt.																					
8 ,, ,,	15 ,, 8 ,,	+ 16 cwt.	+		1	0	+	2	9	0	+	4	17	0	+	6	9	0	+	8	1	0
10 ,, ,,	15 ,, 19 ,,	+ 27 ,,	—		3	0	+	3	18	0	+	7	19	0	+	10	13	0	+	13	7	0
12 ,, ,,	15 ,, 18 ,,	+ 26 ,,	—		19	0	+	2	19	0	+	6	17	0	—	9	9	0	+	12	1	0
14 ,, ,,	15 ,, 2 ,,	+ 10 ,,	—	2	10	0	—	1	0	0	+		10	0	+	1	10	0	+	2	10	0
16 ,, ,,	12 ,, 8 ,,	— 44 ,,	—	5	19	0	—	2	11	0	—	19	3	0	—	23	11	0	—	27	19	0

Composition of Mixed Artificials by weight:
3 parts superphosphate;
1 part sulphate of ammonia;
1 part sulphate of potash.

Cost of Mixed Artificials taken at £7 10*s.* per ton.

Cost of labour on lifting and sorting taken at £1 per ton of potatoes.

Most advantageous results underlined.

which it contains, may be put at so much as £1,000,000. Here then is a problem of great importance, to the solution of which Mr. Golding is making valuable contributions. Samples of dried whey and of bread made with whey were shown, and it is interesting to learn that 4 per cent. of flour had been saved in the process of making a loaf 5 per cent. larger than could have been produced in the ordinary course, but here again it was most disappointing that no financial statement was presented. If a process has not yet reached the stage at which it can be generally employed with profit, there can be no harm in saying so; whereas if it can be shown to be an economic success, then it is inevitable in the very nature of things that the greatest interest can be aroused by a consideration of pounds, shillings and pence. The public appreciates confidences of this nature.

The *Leicester County Council* exhibit divided itself into: (1) Rural Education in Elementary and Secondary Schools; and (2) Adult Agricultural Education. In the first section the exhibits were displayed in categories, such as Handicraft, Cooking, Laundry work, Housewifery, Upholstery, Needlework, Elementary Science and School Garden exhibits. These were all shown separately, much to the advantage both of the exhibits themselves, and also of the visitor, a course which has been previously advocated in these reports. Some of the collections of harmful weeds would have had greater educational value if some explanation had been offered of the conditions under which they are found and the means of combating them. It should also be remembered that a collection of wild flowers is always more valuable, to the collector as well as the visitor, if the complete plant is shown wherever possible together with a note about the locality and the time of year when it was found. It was pleasing to note in the handicraft section that the curriculum included the utilization of discarded materials, the repair of damaged utensils and the making of articles of utility on the farm. Among other exhibits were pieces of farmhouse and dairy furniture, poultry houses, chickens' fostermothers, meteorological instruments, cold frames, garden gates, wheelbarrows, harness-and-saddle racks and beehives.

The Adult Agricultural Section gave no room for doubt as to the valuable work being done by the county. A chart showing the results of grassland improvements at Shoby was not adequately explained, nor were some placards advocating one definite mixture for permanent grass; a label which read "Use Wild White Clover," without giving any indication as to why it should be used, left too much to the imagination, a criticism which might also be levelled against a clean-milk exhibit, which was so complicated as to be hardly intelligible even to those normally engaged in dealing with charts and figures. It was observed that most visitors passed by without an attempt to unravel the mass of data shown. The art of simplicity had not been mastered. There was no space left between the various items displayed, and each exhibit was in itself too cramped, with the result that the spectator had to search out things for himself, instead of having them thrust at him. It was unfortunate under these circumstances that the statement to the effect that instructors would be in attendance to demonstrate the various features was only to be found towards the end of the pamphlet supplied to visitors on entering the marquee. The poultry-keeping exhibit was excellent, as were also the model allotment, and plots of grasses, clovers, cereals and maize, which were to be found outside. Those responsible had exercised great foresight and energy, and are to be congratulated on a very valuable contribution to the educational element at the Show.

From the point of view of utility, the Pavilion of the Ministry of Agriculture and Fisheries was on the whole more satisfactory than the other exhibits, a fact which, together with its situation close to the Ring, caused it to be exceptionally well attended. The practical application of agricultural research and education was shown clearly and simply, and pamphlets were at hand dealing with each subject in detail. The showman's art was used with considerable effect, though the exhibit showing how fruit should be packed would have lost nothing had it been placed for comparison alongside a case of fruit packed as it too often is without care or skill. The model cowhouse was unconvincing owing to the absence of explanation, a defect which would have been less noticeable had the model been more accurate in certain particulars.

The Department of Textile Industries of Leeds University provided an exhibit of exceptional merit, which seemed to cover the whole range of British pedigree wools, yarns and fabrics, and which included a series of fully-wooled skins specially dressed for the purpose of revealing wool-qualities. Professor Barker is to be highly congratulated on having collected and arranged a display of so interesting and instructive a character. Some of the charts, especially one showing the frequency-distribution of wool diameters in different breeds, were rather too technical to be understood by the layman, but where a subject is illustrated so fully the organizers cannot be blamed for catering for the expert. Their difficulty in this case was in striking a balance which would appeal to the largest number of people, and in this they may fairly be judged to have succeeded.

Apart then from certain obvious defects of presentation, the exhibits on the whole were good. It is certainly beneficial to have the more abstruse and purely scientific subjects illustrated, as well as those of a merely utilitarian nature, but at the "Royal" it is the latter aspect that should receive special attention, since the progressive man with scientific interests will always take steps to visit the places where such work is in progress, and to acquaint himself with current literature. The "Royal" gives an unparalleled opportunity for claiming the interest of the more purely practical man, who needs to have things explained to him, and to have them driven home with no little emphasis. Exhibits which touch the fringe of a subject are necessarily unconvincing. Each Institute should aim at setting out as complete a picture as is possible of the department it has undertaken to illustrate, and it should never lose sight of the fact that it is the cash-balance which always makes the most forcible appeal to the farmer.

The exhibit was again under the charge of Mr. W. H. Parker, Director of the National Institute of Agricultural Botany at Cambridge.

THE FORESTRY EXHIBITION AT THE LEICESTER SHOW, 1924.

THE Forestry Exhibition this year was hardly as well patronized by the local estate owners as it has been before. However, there were some very interesting educational exhibits from the Cambridge University School of Forestry, and the Leicester City Museum. The Royal Agricultural Society offered a special medal for the best general collection of exhibits in the competitive and non-competitive sections, and there was no difficulty in awarding the medal to the University School of Forestry at Cambridge, for their exhibit was not only by far the best in itself and in the variety of its details, but it was well displayed. It included cases showing all home-grown timbers as well as cases with hand specimens of Indian and Colonial timbers, graphs showing rates of growth in height, diameter and volume, examples of damage by insect pests and diseases, and a number of microscopes with microscopic slides of timber sections. The Leicester City Museum, who were awarded a silver medal, had a somewhat formal but well-arranged exhibit, including amongst other items framed photographs of trees commonly found in Leicestershire, cases of injurious insects with typical examples of damage done to trees, and a tree-pruning exhibit shown to help amateurs in lopping trees: correct and incorrect methods of pruning were illustrated by sections. They also showed fresh collections daily of the foliage of trees and shrubs common to Leicestershire. The Earl of Yarborough, who has been a very consistent and valued contributor to Forestry exhibitions for many years, had a very varied exhibit, including specimens of the seasoning of home-grown pine timbers, oak plank showing tunnels made by the larvæ of the Goat Moth, specimens of abnormal growths, and of estate timbers treated with wood preservative, and the well-known record of trees planted on the Brocklesby and Manby Estates from the years 1787 to 1924, showing a total in the 138 years of 27,075,900 trees.

Lord Yarborough also showed a collection of boards in Class 5 cut from 107 different species of trees grown on his estates in Lincolnshire and received a silver medal for the exhibit and was also awarded a bronze medal in Class 14 for specimens of stems and boards cut from various conifers illustrating the effects of dense and thin crops in branch suppression and the consequent quality of the timber. Other exhibitors included the Forestry Commission, who had a general forestry exhibit illustrating the growth of a tree from the seed to the final timber product, and the Royal English Arboricultural Society, who had a small section mostly devoted to photographs and literature. One exhibit showing the varied uses of ash timber was of special interest and was staged by Messrs. Hopton and Sons in the non-competitive class, and as an educational exhibit well merited the bronze medal awarded to it.

The entries for the classes comprising gates made by the staff regularly employed on the Exhibitor's estate where the timber was grown were very few in number, but they displayed excellent workmanship, especially those that came from the Estates of the Duke of Rutland and the Duke of Devonshire. The former was awarded a silver medal in respect of each entry in Classes 7, 8 and 9, and the latter obtained bronze medals for an oak field gate for farm use and a self-closing wicket or hunting gate manufactured from home-grown timber, and was highly commended for a field gate of home-grown timber other than oak. Sir Arthur Hazlerigg, who showed a specimen of a local field gate for farm use in Class 8, was also highly commended.

There is so much of educational value to the public in the exhibition, and there can be so much of interest to estate hands and all concerned in country estate life, that it is a pity the Society's exhibition is not taken up more widely and made more representative of Forestry in this country.

LESLIE S. WOOD.

East Grinstead.

REPORT OF THE JUDGES ON THE PLANTATIONS COMPETITION, 1924.

THE Plantations Competition for the year 1924 was confined to the counties of Leicester, Rutland, Warwick, and Berkshire. It did not command a large number of entries, in fact there was not a single entry for Warwickshire, but so far as the entries went they reached a very good standard, and gave the impression that on the whole owners were not disposed to enter their plantations for competition unless they felt that they had something really worth showing. As a result all the plantations to which awards were made were well worthy of the medals, and if the classes had had large entries it is probable that several of the awards would have gone to the same plantations.

The entrants are under the disadvantage that they do not see the other entries, and in some cases have not had opportunities of seeing many other plantations of a similar character, so it is difficult for them to judge the standard of the areas exhibited; but on the whole they gave the impression that they did not realise that the plantations were as good as they were. With us the result of a week's work left the definite impression that planting was a profitable investment both for the value of the timber and the improvement of the estate, and our visits showed us that the plantations were a source of pleasure to the owners and to those engaged in the Forestry work. There was much to encourage the timid landowner who has been putting off his planting for the past 20 years and who, by now, might have been showing some really useful and profitable plantations.

On the whole the plantations do not lend themselves as objects for criticism: it seemed to us that the tendency everywhere was to thin insufficiently, but that was a fault—a good fault, possibly—that could be rectified without difficulty and would only be reflected in the plantation by a reduced average girt. There was but little comment to be made upon the mixtures and the choice of species to suit the various soils, but a competition of this nature does not reveal the failures except under Class 11 for the best managed woodlands on an estate, and in the plantations shown the early thinnings would have tended to rectify initial mistakes. In the Ramsworth plantation of Mr. E. E. Palmer we found an example of a nurseryman's mixture planted 23 years ago, and including Scots pine, spruce, larch, beech, sycamore, elm, and hazel: the main part of this was on a very difficult chalky bank; the other part was on the level ground. These two illustrate our point, for the trees on the bank had been unable to grow and the uselessness of the mixture was apparent, but on the better soil below the larch has acquired an average girt of over 4 in. and the Scots fir about 3¼ in., and the trees that had got their heads up were about 35 ft. high. Thus the evidences of failure had largely been removed in the course of a thinning when the dead trees were removed. It may be said in favour of such a miscellaneous mixture that it did at any rate give an opportunity for the trees best suited to the soil to develop, but we should rather say that where the soil is favourable to the growing a preliminary error which may be very apparent at first can be adjusted in later years and leave no trace behind it.

The Competition followed the lines of the schedule that was arranged for the previous year, and as we were not in a coppice country there was only one entry for the first two classes, although two other entries had been incorrectly made in Class 1. The one entry in question was that of the Earl of Gainsborough, who showed a very interesting area of coppice with standards comprising some excellent ash of considerable value, but there was not sufficient evidence of systematic management to warrant a prize.

From the judges' point of view the chief interest lay in the entries under Class 11, because they had under review not only a few specially selected plantations but the whole of the estate woodlands with their successes and failures. In this class the Special Medal went to Dr. Herbert Watney, and the Silver Medal to the Trustees of Sir R. Sutton. The two estates as we see them to-day are very different. The work on the Benham Estate is in an early stage and the plantations are newly planted, but there is a definite purpose in all that is being done and those responsible for the work are very keen: the nursery which was awarded the Silver Medal is in good condition and well managed, and there is a good prospect for the future. On the Buckhold Estate of Dr. Watney we saw the result of systematic work for the past 42 years. The plantations and the treatment of the old woods have very rightly earned for Buckhold a great reputation, and they are a wonderful object lesson of the result that can be obtained by an owner in his lifetime. It is probable that the history of these woods and details of the results will form the subject of a publication later on, so we cannot anticipate this in any way except so far as we deal with plantations that were entered for special classes; but we may say that the plantations that we saw have an area of 434 acres and were formed at different times between 1882 and 1921. The old woodlands cover a further 486 acres and were originally coppice with inferior standards of oak.

The plantations were formed on land that was devoid of trees, and they were laid out by the owner as an amenity to the house which he built. They have now grown up to form a series of plantations giving the appearance of a wooded estate. Some of these planted areas have already been felled and realised a good price during the war, and the work of planting is still going forward. Some of the details of the plantations will be given later on when dealing with the several entries, and they as well as all the other plantations that go to make up the total area are a convincing proof of the profitableness of timber growing when it is conducted on proper lines from the beginning. We are so apt to judge the profits of Forestry from the old woods that we see to-day, many of them mere wrecks of what the plantations should be, but at Buckhold we see modern sylviculture at its best.

The young plantations were divided, as before, into three classes—hardwoods, conifers, and mixed areas. None of these plantations could be of less than 10 years' growth, and every class was divided into two stages. In Stage A were included those plantations that have been weeded or lightly thinned, including the removal of dead or dying trees. In Stage B we got the continuation up to the completion of the second thinnings. It is very difficult to get hardwoods that qualify for these conditions, and consequently there was no entry in Class 3, which embraced the first stage. In Stage B, which corresponded to Class 4, there was only one entry, but it was one of special merit embracing a very good plantation of beech with some Austrian pines. The trees were long and clean but rather too much crowded, but it was reckoned by the estate that the annual increment was about 88 cubic ft. per annum. It was calculated that the trees were about 40 ft. high, and there were about 1,210 to the acre, of which 193 were conifers. The present cubic contents were reckoned at 2,542 ft. of beech and 627 ft. of conifers per acre.

Amongst the conifers there were more entries, and in Stage A we saw seven entries and in Stage B two entries. In the former class both medals were won by Sir Arthur Hazlerigg, who showed two good plantations. The plantation that won the Bronze Medal was Coney Hill, which was planted 20 years ago, mostly with larch but with a few other conifers and some oak, and now mostly consists of larch, which have an average height of about 38 ft. and an average of the quarter girts of 3½ in. at breast height. If the owner had not been so careful in his thinning he would have done better, but his Coronation Plantation which won the Silver Medal will soon afford an opportunity of testing the effect of more open growth. This plantation consists mostly of European and Japanese larch and has a few Scots fir. It was planted 12 years ago with trees 3 ft. apart, and at the present time they show an average of the quarter girts of 2¾ in. and a height of about 25 ft.

In this same class was the Ramsworth Plantation that we have already mentioned and an entry by Mr. A. T. Loyd, showing conifers in three sections. The first of these consisted of Japanese and European larch 17 years old and about 40 ft. high. They were too much drawn up and on the whole did not look happy, and the disease was noticeable in the European. The second section was mostly European larch with a few Scots fir, and the third part, which was the best area, was mostly European larch, 15 years old, about 32 ft. high. At the age of 17 the Japanese larch showed an average of girts of 2½ in. quarter girt, and the European larch at 17 and 16 years showed quarter girts of 2½ and 2¼ in. respectively. Another comparison in heights and quarter girts was afforded by Mr. E. E. Palmer's Birch Field Plantation, where the larch growing with an admixture of Douglas, alder and ash showed a quarter girt of 2¾ in. and an average height of the trees with their heads up of about 25 ft.

In Class 6, which embraced the later stage of the conifer plantations, Dr. Herbert Watney took the Silver Medal for his Knapps Hill Plantation, and Sir William Mount was awarded the Bronze Medal for a plantation of larch at Harts Hill. Dr. Watney's Plantation was a mixture of European larch and Douglas in which a few Norway maple and ash were originally planted, but few of the maples survive. The trees were planted 7 ft. apart in 1898, have been well thinned, and to-day look very healthy and of a good colour, and the larch show very little disease. The larch have an average of the quarter girts of 6¼ in. and the Douglas 7¾ in. and the average height of both is 49 ft. There are now 570 trees to the acre, of which 35 are Douglas.

Sir William Mount's Plantation is 4 years older than the foregoing. It is pure larch facing north, originally planted 6 ft. apart, but the trees were evidently neglected in their early days, and they were drawn up too much and many of them have tops too small for making good growth. They showed an average of their girts of 6¼ in., and a boring with a Pressler's borer showed sixteen rings in the last 2 in. and ten rings in the last inch. The trees were not of a healthy colour, and generally gave the impression that they were rapidly reaching the limit of profitable growth even at that early age.

Class 7 was the early stage of mixed plantations, for which the Silver Medal went to Sir Arthur Hazlerigg. The plantation is partly ash and partly larch, both in need of being thinned, but neither has suffered harm in consequence. The average height of the trees is about 48 ft., which is a fine growth for trees of 24 years. The larch gave an average of girts of 4½ in. over bark and the ash 3¾ in. The ground had been trenched prior to planting and three-year-old plants had been put in 3 ft. apart.

The Bronze Medal was won by Dr. Herbert Watney for an interesting plantation known as Knapps, which was originally planted in 1906 with Douglas and European larch 7 ft. apart, with a few beech and some four bushels of acorns. The plantation has never been thinned, but very few of the oak and beech have got through. The average of the girts of the larch is now nearly 4 in. and the height 38 ft., the average of the Douglas is 5¼ in. quarter girt and 37 ft. in height. There are 765 trees to the acre, of which 120 are Douglas.

Class 8 for the older mixed woods produced the most interesting plantation in the competition, that of Dr. Herbert Watney's Douglas and European larch on The Gravels, to which the Gold Medal of the Royal English Arboricultural Society for the best plantation was awarded in addition to the Silver Medal for the class. Dr. Watney tells us that the ground before it was planted in 1893 was so poor that even weeds could hardly grow on it. The land was first ploughed and sub-soiled, then four bushels of acorns and some Spanish chestnuts were sown broadcast, and the surface was pressed and harrowed. Then Douglas and Thuja were planted about 16 ft. apart, some 150 ash and 150 beech were planted per acre and the whole filled up with larch 7 ft. apart. To-day the Douglas have mostly suppressed the other trees, but there is a belt of larch round the plantation. The record of the Douglas as supplied by Dr. Watney is most interesting :—

Date.	Age.	Average circumference.	Height.
1904	11 years	13½	23 feet
1911	18 „	27	45 „
1916	23 „	36	55 „
1922	29 „	50	71 „

This last measurement, it should be added, is taken from a part where the trees are doing well.

The Bronze Medal in this class was awarded to the Leicester Corporation for their plantation in Rothley Parish. It was originally planted 28 years ago with trees 6 ft. apart. In spite of a previous thinning it still needs thinning, and if it were treated with judgment there would be a good stock of trees and a valuable plant of ash. The trees have an average height of about 40 ft., and both the larch and ash have quarter girts averaging 3½ in.

The awards in Class 9 followed those in Class 11 because both owners in their system of management had dealt with their old woodlands. Amongst Dr. Watney's areas which gained the Silver Medal were two interesting cases of conversion of coppice into highwood. One of these was a case of chestnut underwood which was cut down 43 years ago and some of the stool shoots were allowed to grow into high woods. These trees now stand about 465 to the acre: they average 70 ft. high and about 7¾ in.

quarter girt at breast height over bark. The other case was that of a woodland area that was almost denuded of timber by the late owner about 40 years ago. Dr. Watney left the few oaks that remained, and finding a good growth of oak underwood left the stool shoots to grow into highwood with a very successful result. In this period there have been three thinnings, the last of them in 1917, and the aim has always been to keep a canopy, and as a result the trees to-day are tall and clean. The records of measurements show that :—

In 1911 the trees girthed about 20 in. and were some 50 ft. high.
„ 1916 „ „ „ 26½ „ „ „ 54 „
„ 1922 „ „ „ 27½ „ „ „ 58 „

and they averaged 530 to the acre.

Sir Richard Sutton's Trustees' entry comprised about 200 acres of rough woodland, which was first taken in hand some 3 years ago and is being planted up with conifers. It is too early to criticise the plantations themselves, but they are starting well and the whole scheme is planned on sound lines.

Class 10 gives an opportunity to the younger plantations, for whereas Classes 3 to 8 are restricted to areas of at least 10 years' growth this class embraces plantations of 5 years and upwards, but excludes Scots fir and European larch. The Silver Medal was gained by Mr. A. T. Loyd for his plantation at Langley Wood, planted 8 years ago with Douglas and a few Japanese larch. The Douglas has made excellent growth, but the Japanese have done rather better. They are of a good colour and have cleaned themselves well. Not quite so good, but a very good second, was Mr. E. E. Palmer's plantation known as Parson's Piece. It is mostly Japanese larch, Douglas and Sitka, 9 years old and full of life, although apparently the soil is not quite suited to the Douglas.

As we have said, and as it will be understood, it was a good competition, and it was a pity that there were not more entries, for it was a great opportunity for us to see new estates and plantations, it was a matter of interest to the owners, and it is a great encouragement to the foresters and woodmen responsible for the work to know that their plantations are worthy of entry, and we all found pleasure in meeting on the ground and discussing the work and its result.

THOS. ROBERTS.
LESLIE S. WOOD.

REPORT OF THE JUDGES ON THE ORCHARD AND FRUIT PLANTATION COMPETITION, 1924.

THIS competition was restricted to the counties of Gloucester, Hereford, Warwick, and Worcester, and the following classes were provided:—

CLASS 1. Orchards of standard fruit trees planted not less than 8 years on grass, being not less than 3 acres and not more than 10 acres.

CLASS 2. Orchards of standard fruit trees planted not less than 8 years on grass, being not less than 10 acres.

CLASS 3. Plantations of fruit trees planted not less than 8 years, being not less than 2 acres and not more than 10 acres, on cultivated ground.

CLASS 4. Plantations of fruit trees planted not less than 8 years, being over 10 acres, on cultivated ground.

CLASS 5. Plantations of bush fruit planted not less than 4 years, being not less than 2 acres.

CLASS 6. Plantations of plum trees planted not less than 6 years, being not less than 2 acres, on cultivated ground.

CLASS 7. Plantations of strawberries of any age, being not less than 2 acres.

CLASS 8. Orchards mainly of cherries, planted not less than 8 years, on grass or cultivated ground, being not less than 2 acres.

Entries received for these classes were as follows:—

Class 1	11
„ 2	8
„ 3	3
„ 4	22
„ 5	9
„ 6	8
„ 7	7
„ 8	7
Total	75

We adopted a method of scoring, which was found to work satisfactorily, based upon the following scale of points:

System of planting	15
Pruning and shape	10
General vigour and productiveness	15
Freedom from pests and diseases	15
Land cultivation, having regard to the profitable use of the ground	15
Selection of varieties	5
Economical and commercial aspects	15
General appearance	5
Fencing and protection	5
	100

The districts visited by us had practically all been subjected to the deluges of rain which occurred at the close of May and early in June, so that many plantations were badly washed, but we saw no serious damage. With wet and dull weather prevailing during practically the whole of May, land work was in many cases seriously behindhand, but as this affected all of the competitors similarly the exceptional circumstances did not influence our judging or the awards made. As a whole, the orchards and plantations entered for competition were of a high standard and competition in some classes was exceptionally keen. Only in very few cases did we find any signs of special attention being given to a particular part of a fruit farm by reason of its being entered for competition, and we were therefore able to see the entries under normal conditions of management.

GENERAL.

The general appearance of the fruit trees was good; growth was fair, and there was comparatively little damage done by leaf-eating caterpillars. We regret to report that the crops of top fruit were very poor, and in some cases there was no crop at all—this was especially noticeable in farm orchards. It was generally reported that nearly all varieties of apples and pears had flowered well, while the blossom of plums had varied in different districts and according to varieties. While not attempting to explain the absence of a full crop after such a promise shown during flowering, we should state that we consider the failure of the crop in many cases was not in any way, as far as we could see, due to mismanagement on the part of the growers.

PESTS AND DISEASES.

We are pleased to record that we saw no devastation caused by pests and diseases such as was so common last year. Leaf-eating Caterpillars had done considerable damage in some districts, chiefly where banding had not been attended to or where spraying had been neglected or not efficiently applied. Damage by Tortrix and Lackey Moths was probably more prevalent than usual. Apple Sucker had been very prevalent in some plantations, as was evidenced by the smutted leaves and the hordes of adults. Apple Blossom Weevil attacks, too, had been severe in some orchards.

Aphides were not at all conspicuous; the leaf-curling species were scarcely seen on apples or plums. A few bunches of Rosey and Blue apple species were noted, as also was the Mealy Plum Aphis. The Currant Aphides seemed to be nearly all cleared by their natural enemies, particularly by Lady-bird larvæ.

Severe attacks by Capsid Bugs were not common, only one bad case being noted near Evesham. Damage by the Raspberry and Loganberry Beetle (Byturus) was anticipated on several plantations.

Of diseases, Apple Mildew was serious in some plantations on a large number of varieties, and was doing much damage to Newton Wonder, Lane's Prince Albert, Worcester Pearmain, Cox's Orange and others. Apple Scab or Spot was also serious in some plantations and was seen in nearly all. The variety most affected was Worcester Pearmain, although other varieties were badly attacked.

We saw a moderate amount of Silver Leaf of plums and of apples, but scarcely so much as might be expected. Reversion of Nettlehead of black currants was general, but only in one or two cases was it seriously bad.

Red Plant, or failure of strawberry plants, was rather general and really bad in one entry.

American Gooseberry Mildew was noticed in nearly all plantations of gooseberries, but in most cases there was no serious damage.

AWARDS.

We have pleasure in making the following awards:—

CLASS 1. *First.* T. J. Godsall, The Wood, Suckley, nr. Worcester.
Second. A. R. Littleton, Grange Court, Westbury-on-Severn.
Reserve. C. W. Powell, Warham, nr. Hereford.
Commended. A. J. Cook, Court Farm, Norton, nr. Gloucester.
CLASS 2. *First.* Exors. of James Best, The Stocks, Suckley, Worcester.
Second. The Hilltop Fruit Farm, Ledbury.
Reserve. H. I. Phelps, Tibberton, Gloucester.
Commended. Mrs. Rayner-Wood, Old Colwall, Malvern.

CLASS 3. *First.* R. Harold Bell, Titton Hill, Stourport.
Second. F. Holder, Gaston House, Bidford-on-Avon.
Commended. S. G. Mason, Steppes Piece Fruit Farm, Bidford-on-Avon.

CLASS 4. *First.* F. Boddington, The Manor House, Burghill, Hereford.
Second. Eardiston Farming Co. (1919), Ltd., Stockton, Worcester.
Reserve. The Hilltop Fruit Farm, Ledbury.
Very Highly Commended. Messrs. T. & M. Dixon, Farmers, Ltd., Tardebigge, Bromsgrove.
Commended. J. D. Lane, Broom Court, Bidford-on-Avon.
Commended. Exors. of James Best, The Stocks, Suckley, Worcester.

CLASS 5. *First.* Messrs. T. & M. Dixon, Farmers, Ltd., Tardebigge, Bromsgrove.
Second. F. Paget Norbury, Sherridge, nr. Malvern.
Reserve. F. Boddington, The Manor House, Burghill, Hereford.
Commended. H. J. Pewtress, Tillington Fruit Farm, Hereford.
Commended. H. B. Pollard, Green Hill, Evesham.
Commended. A. W. Smith, Rowanfield House, Cheltenham.

CLASS 6. *First.* Exors. of James Best, The Stocks, Suckley, Worcester.
Second. F. Paget Norbury, Sherridge, nr. Malvern.
Reserve. H. B. Pollard, Green Hill, Evesham.
Very Highly Commended. Col. E. V. V. Wheeler, Newnham Court, Tenbury.

CLASS 7. *First.* R. H. Bell, Titton Hill, Stourport.
Second. C. H. Sykes, Hampton, Evesham.
Reserve. T. S. Bennett, Manor Farm, Lower Wick, Worcester.
Commended. F. Paget Norbury, Sherridge, nr. Malvern.

CLASS 8. *First.* Eardiston Farming Co. (1919), Ltd., Stockton, Worcester.
Second. Col. E. V. V. Wheeler, Newnham Court, Tenbury.

We offer the following review of the Orchards and Plantations entered for competition:—

CLASS 1. An interesting set of orchards, mainly attached to farms, containing culinary, cider and perry varieties, and also plum trees. Several exhibits were old orchards which had been renovated and were not from recent direct planting.

First (Mr. T. J. Godsall), of 6 acres, was above the average standard for the class. The trees were up to 30 years old, planted 30 ft. by 30 ft. and in very good order. Pests and diseases were not numerous—this orchard had been sprayed with a winter wash and is usually powder-sprayed in spring. Owing to weather conditions and flooded land the orchard was left for mowing. It can be described as a credit to the tenant, who has a good many other matters to attend to connected with his farm.

Second (Mr. A. R. Littleton). A renovated orchard of apples 36 ft. apart with plums as fillers. The trees, about 14 years planted, are vigorous and in good order. The turf is good and well grazed.

Reserve (Mr. C. W. Powell). A farm orchard, 5 acres, 22 years old, direct planting, market apples. We consider there are too many varieties, some of which are either not economically good or are not likely to grow healthily. The pasture is in very good order.

Commended (Mr. A. J. Cook). A farm orchard of 4 acres planted at intervals with market and cider apples and perry pears. The trees here are well shaped and in good vigour; the system of fencing, although most excellent, is probably too costly to be recommended for large acreages of orchards under tenancy.

CLASS 2. These orchards were in the main attached to fruit farms and were given more attention than those in Class 1.

First (Exors. of James Best). Area, about 43½ acres, planted about 30 years. This is a well-set-out orchard with an even set of trees at 27-ft. spaces, containing in the main the most useful of the commercial varieties of apples. Pests and diseases had been kept well in check by spraying; fencing and pruning well done. This orchard is likely to become too crowded at a time when the trees are in their prime.

Second (The Hilltop Fruit Farm). About 15 acres in extent, trees 20 to 25 years old, at 30-ft. spaces. A clean, well-set-out orchard, but probably too many varieties, some of which are of doubtful value. Vigour not heavy, but sufficient for the type of trees, which showed that heavy crops had been carried in previous years. The grass had got rather out of hand in respect to grazing, but had a very good herbage.

Reserve (Mr. H. I. Phelps). Farm orchard at 30-ft. spaces, of various ages from 11 years. Several local varieties were included in addition to the most useful market varieties. Caterpillar damage was rather evident on some. General economical and commercial aspect very good. Grass rather long on a good pasture.

Commended (Mrs. Rayner-Wood). Area, 23½ acres at 30-ft. spaces, about 15 to 20 years. Several varieties planted extensively which are not usually successful in an orchard. Trees well shaped but had evidently not fruited heavily. Grass well grazed and general appearance very good.

CLASS 3. This class was not very well filled, although it should have given the Smallholder and smaller type of Fruit Grower an opportunity of participating in the competitions.

First (Mr. R. H. Bell). Area, 9¾ acres. A plantation of apples of Early Victoria and Worcester Pearmain at 21 ft., interplanted with plums (Martin's Seedling), undercropped with black currants. This exhibit was in very good order and well managed.

Second (Mr. F. Holder). A small-holding fruit plantation, about 15 years old, of apples and plums in alternate rows—12 ft. in the row, 24 ft. between the rows, with various crops under. Planting is likely to be too close in a few years' time, otherwise the system appears to be very good for the type of holding. Plums had suffered badly from Brown Rot, and Capsids had marked a large percentage of apples. General attention and cultivation good.

CLASS 4. This class was well contested by plantations of an average high standard of general upkeep.

First (Mr. F. Boddington). Area, about 20 acres, of 15-year-old trees, at 12-ft. spaces. The trees here had been well trained on a good economical system of pruning, all parts of the trees containing useful wood well placed. Probably the trees are too low on the stem, which has necessitated carrying the trees up too much. This may affect cropping. Varieties are rather numerous, some of which, although finding a sale, are not among those usually planted, *e.g.*, Duchess Favourite, Golden Spire, Golden Noble. The plantation was exceptionally free from pests and disease, and in general appearance and commercial aspect was exceptionally good. Land cultivation was thoroughly well done.

Second (The Eardiston Farming Co., Ltd.). Area, 38½ acres, of half standards with fillers undercropped with red currants, black currants and gooseberries. A set of well-trained trees showing careful attention all through—the pruning is not in any way overdone. There are, in our opinion, too many trees of varieties of doubtful commercial value, *e.g.*, Peasgood's Nonsuch, The Queen, and Gascoyne's Scarlet. Land cultivation was good, but we think that, considering the type of tree and system of planting, plans might be made to lay part of the area to grass or to a sod mulch. Apple Mildew was a serious disease in this plantation.

Reserve (The Hilltop Fruit Farm). Area, 51 acres, of semi-bush apples, interplanted with plums and pears, at 15-ft. spaces. Well-grown trees carrying above the general average crop of both apples and plums for the season. Selection of varieties very good. Apple Mildew and Plum Sawfly damage rather extensive.

Very Highly Commended (Messrs. T. & M. Dixon, Ltd.). Area, about 18½ acres, part in half standards and part in low bushes. System of pruning together with cropping has resulted in wide-spreading flat-topped trees; this hinders cultivation but has probably induced cropping. General and economic aspect good.

CLASS 5. This class was not so heavily filled as might have been expected, but the exhibits were in the main good, with some very outstanding examples of bush-fruit cultivation. Competition was close and marking high.

First. 98 per cent. (Messrs. T. & M. Dixon, Ltd.) Area, 66½ acres, part in raspberries (Baumforth's Seedling) and part in gooseberries (Whinham's Industry and Lancashire Lad). One section of 7 acres of raspberries was exceptionally even, free from rogues or gaps, with every prospect of a heavy yield of fruit. The gooseberries were also above the ordinary, bushes well shaped with a full crop of useful-sized berries. This exhibit was one of the outstanding features of the competitions.

Second. 97 per cent. (Mr. F. Paget Norbury.) Area, 12 acres, part in loganberries at 7-ft. spaces, and part in black currants at 7 ft. by 3½ ft. The loganberries were in their fourth fruiting year and were in thoroughly good order with every prospect of a good sound crop. Bandings of canes and posts had been done as a control for the Red-legged Raspberry Weevil, which proved effective. The section of black currants of three varieties was bearing heavy and good crops, the bushes being in full vigour with a low percentage of reversion.

Reserve. 96 per cent. (Mr. F. Boddington.) Area, 12 acres, of black currants, planted at 6-ft. spaces. A good vigorous batch well fruited and with few gaps or refills.

CLASS 6. A medium class with few really outstanding exhibits. The variations in the crops, both in set and size of fruits, made scoring rather difficult.

First (Exors. of James Best). Area, 39 acres, mainly Pershore Yellow Egg, planted at 15-ft. spaces. Trees standing well, with good well-balanced heads. Crop the heaviest and best seen. Cultivation of land very good, and very little damage by pests.

Second (Mr. F. Paget Norbury). Area, about 4 acres, chiefly Martin's Seedling (Pershore Purple) at 15-ft. spaces. Vigour of trees not too strong, but crops very good and quite heavy enough for a good grade of fruit. Banding and spraying closely attended to, resulting in practically clean trees.

CLASS 7. This class did not show any exhibit of outstanding merit, although some of the entries were moderately good.

First (Mr. R. H. Bell). A 5-acre batch of maiden Royal Sovereign well established, with very few poor plants, and good prospects of an early crop.

Second (Mr. C. H. Sykes). This exhibit was an undercrop for widely planted plums. Varieties: Royal Sovereign and Bedfordshire Champion. Part of this exhibit was in the fourth fruiting season, but was showing good-grade fruit with few blind or weak plants.

CLASS 8. The entries in this class were variable and we were only able to place two as being of sufficient standard to mention.

First (The Eardiston Farming Co., Ltd.) Area, 35 acres, of an even age and vigour, at 33-ft. spaces. Trees had been well attended and were in good order, there being but few losses of branches by disease. Crops were very thin on some varieties. This orchard was well managed with very good herbage in the pasture.

Second (Col. E. V. V. Wheeler). Area, 7 acres, of rather young trees, in good condition. Crops thin in parts.

GRASS ORCHARDS.

Some little difficulty was experienced in making awards in the case of orchards consisting mainly of cider and perry varieties exhibited in the same classes as orchards planted with market fruit. We have, as far as possible, equalised the merits when awarding the points, but it is obvious that cider and perry orchards might be economically managed and possibly be a commercial success with less detailed attention and liability to heavy losses than orchards of market fruit.

We found that the production of cider fruit was receiving closer attention from farmers, particularly in Gloucestershire, and from our experience and observations during our inspection we would recommend the following varieties for planting or top grafting as being good vintage fruit and useful trees in renovated and new orchards:

Kingston Black (on good land not too dry), Fox Whelp, Cowarne Red, Eggleton Styre, Skyrme's Kernel, Sweet Alford, Cap of Liberty (Red Soldier) in favoured situations.

We are of the opinion that it would be a better policy for the average farmer to endeavour to produce good cider fruit rather than attempt to replant his orchards with market fruit which might require closer attention and probably involve more time in marketing.

In the management of Grass Orchards we would suggest that closer attention should be paid to the condition of the grass, and more frequent grazing be followed, where possible, to improve the herbage and prevent starvation of the trees at a critical time. The practice of mowing orchards for hay is not recommended as this will in a short time affect the trees.

VARIETIES.

Apples. Of the varieties of apples found in orchards and in plantations we were rather surprised to see quite a large proportion of varieties which have for some time been known to be uneconomical to plant, either by reason of their shyness in cropping, lack of popularity on the general market, or their susceptibility to pests and diseases.

We would suggest that varieties such as the following should be eliminated from plantations where possible:

Wellington, Eclinville Seedling, Gascoigne's Scarlet, Peasgood's Nonsuch, Golden Noble, and Warner's King in some localities.

We saw a fair proportion of Cox's Orange trees on nearly all exhibits, but with few exceptions we could not learn that reasonable crops have ever been realised, and we are of the opinion that too much reliance should not be placed on this variety as a moneymaker except in districts and under conditions where it is known to be successful.

We found that James Grieve was a popular variety and was reasonably successful. While this apple may do in districts where sound ripening of the wood is almost certain, we do not think that it can be recommended for universal planting.

Plums. In regard to plums, we found that River's Early Prolific was fairly popular, and that the general opinion was for the trees to be on grass. We consider that the stock on which this variety is worked may have strong influence on the behaviour of the tree, and from our observations we venture to suggest that Myrobalan may be the most suitable for grass-orchard trees.

The Purple Pershore (Martin's Seedling) is extensively planted and was, in general, moderately well cropped when worked on the Pershore stock. The trees seem well suited as a filler and are not so rough in habit as the Pershore.

Victoria is still prominent in most plantations, but is being thinned by silver-leaf disease. The best trees we saw, both as regards health and vigour and also the grade of crop, were worked on Pershore stocks.

We were surprised to see the comparative neglect of trees of Yellow Pershore in regard to damaged branches and open wounds, but the relative freedom from silver leaf was noteworthy. The power of old trees to revive themselves after severe heading down is astonishing to those not accustomed to seeing this variety in large areas.

In the use of this variety as a stock, we venture to criticise the method of grafting on the suckers still attached to the old parent trees, as this cannot be the best means of producing good straight-stemmed, vigorous trees.

Strawberries. A problem which seems to be pre-eminent is that of the production of strawberries for preserving, as we feel assured the variety Stirling Castle, in its present state, does not produce sufficient weight per acre to be worth much serious attention. There will always be a good demand for jam for a strawberry variety of the Stirling Castle type, and we think that some attempt should be made either to regenerate the variety or to make exhaustive trials of other varieties having the qualities of sufficient acidity and colour for preserving.

Of dessert varieties we have doubts as to whether this crop is a commercial success on a fruit farm, unless it is exceptionally well done and a good strain of the variety maintained. This is in view of the fact that strawberries are grown as special crops in favoured districts in other parts of the country.

SYSTEMS OF PLANTING.

In regard to the systems of planting we are inclined to consider that planting has been too close, and without due thought as to the ultimate spread of the trees when in their prime for bearing heavy crops, or for the methods of cultivating the land both economically and to induce frequent fruiting.

We would suggest that several plantations visited by us could be more economically, and possibly more productively, worked if grassed down for pigs and poultry or for grass-mulch treatment. By this method working expenses could be reduced, and vigorous, full-grown trees induced to fruit. We did not see any detrimental effect of this system on any set of trees where the grass was kept under control, but rather to the contrary as inducing a more even growth and fruiting.

LAND CULTIVATION.

On some plantations visited we found the cultivation rather rough and the land very dirty, which would mean exorbitant expenses in cleaning, or, more probably, open abandonment to the rubbish, resulting in due time in starved trees.

While allowing for the fact that May is a bad time for land work, we would venture to suggest that more labour should be put on during late winter rather than to expect to get everywhere clean in spring. In this particular season conditions were ideal during February and March for cultivation, and where advantage had been taken of this the plantations were in good order, excepting for a few annual weeds which had grown during late May.

We would suggest ploughing during late autumn, followed by spring-toothed cultivators and possibly disc cultivators in spring, to produce a fine workable tilth and kill young weeds early in the season. This will be conducive to easier working during spring and summer, and should help in conserving soil moisture.

We saw a very heavy type of wide horse hoe with large flat blades in general use, and we were led to conclude that this implement was used to clear up a good deal of the rubbish due to neglect of winter working. We would suggest that a too frequent use of this implement may encourage soil pan, damage roots and not aid tilth, and we consider it to be too heavy in draught and too unwieldy for plantation work.

CONTROL OF PESTS AND DISEASES.

We viewed with interest all matters appertaining to the control of pests and diseases, as we realise that the grower who is attempting to avoid losses is the one most likely to be successful. A large amount of delayed winter spraying had been done with several types of a tar-product fluid, and in many cases we saw some remarkable results in the control of caterpillar and sucker pests; but we also saw plantations where very little good could be traced to the use of these fluids. We were thus led to conclude that the method of application had been at fault and probably the workmen had not been instructed to wet the twigs and spurs of the trees thoroughly. While these fluids, when efficiently used, have been of undoubted value in controlling some pests, we do not think growers should rely on them as cure-alls, and we would suggest that some proof is necessary that they do not have ill effects on the bark accumulatively when used for several years.

As previously mentioned, Apple Sucker was found to be a serious pest, especially where it was not fully recognised by the growers as being decidedly harmful. We ascertained in some cases that efforts to control it were either too late or that the fluid used was not sufficiently strong. We would advise the use of:

$$\left.\begin{array}{l}\text{6 to 8 oz. of Nicotine, and}\\ \text{4 to 6 lb. of Soft Soap}\end{array}\right\}\text{to 100 gallons of water,}$$

instead of 1½ oz. of Nicotine, as used by some.

We found that the presence of caterpillars was not recognised by some growers sufficiently early for spraying to be effectual, and that the spray was too forcible in the case of Lead Arsenate to deposit the poison on the younger leaves effectually.

We found grease-banding closely followed up by the majority of growers, but we would suggest that more attention should be given to reviving the grease in early spring. The practice of applying the grease direct to the trunk and without paper was very general, but is not followed by all growers. While not wishing to doubt the experience of growers in this matter, we think that it is safer to use paper bands rather than direct application. There is the possibility of some types of grease being quite dangerous when used direct, and also of good greases losing some of their solvent by absorption in the accumulations of the grease of other seasons, thus becoming hard and useless. The accumulations of grease, whether on the same position on the trees or at changed positions, does not seem good for the natural growth of the trunk, and we would like to be fully assured of the safety of applying grease direct before we could recommend this practice.

With regard to the damage by Capsid Bugs, especially in the Evesham district, we consider that every effort should be made to cope with this pest, as we had ample proof on one exhibit that this could be done by following up each year with nicotine sprays.

We wish to tender our hearty thanks to all competitors who gave their time and were so free with information when we inspected their exhibits; and we also wish gratefully to acknowledge our indebtedness to all those who showed us hospitality, or who provided cars and accompanied us during the inspection, for without such help our task would have been almost impossible.

C. S. SMITH.
A. D. TURNER.

REPORT OF THE COUNCIL TO THE ANNUAL GENERAL MEETING OF GOVERNORS AND MEMBERS OF THE SOCIETY,

To be Held at the

Royal Agricultural Hall, Islington, London, N.,

On WEDNESDAY, December 10, 1924, at 2.30 p.m.

Membership.

1. The Council have to report that the list of Governors and Members has undergone the following changes since the Annual General Meeting on December 12, 1923: 18 new Governors (including 8 transferred from the list of Members under Bye-law 7), and 718 new Members have joined the Society, and 8 Members have been re-instated under Bye-law 14; whilst the deaths of 3 Life Governors, 10 Governors, 89 Life Members, and 184 Members have been reported. 1 Governor and 76 Members have been struck off the books under Bye-law 12, owing to absence of addresses; 2 Governors and 182 Members under Bye-law 13, for arrears of subscription; and 3 Governors and 358 Annual Members have resigned.

2. During the past year the Council have sustained the loss by death of two of their number. Mr. Arthur P. Turner first became a member of the Society in 1883, and represented Herefordshire on its Governing Body from 1904 until his decease at the end of March last, serving as a member of the Stock Prizes and Chemical Committees. Mr. Turner's memory will always be associated with the Hereford breed of Cattle, of which he had acted as a judge not only in this country but also in the United States and South America. By the death, on September 23, of Lord Ailwyn the agricultural community in general and the Royal Agricultural Society in particular have suffered a great loss. His lordship was elected a member of the Society in the year 1888, and joined the Council in 1903. In 1905 he was appointed a Vice-President, in 1922 a Trustee; and he was for many years a member of the Finance, Veterinary, and Selection Committees. As Acting-President for H.M. The King in 1911, Lord Ailwyn did an immense amount of work to ensure the success of the Royal Show held at Norwich in the year of His Majesty's Coronation. During his life he filled many public offices, including the Presidency of the then Board of Agriculture.

3. The deaths have also to be recorded of Mr. W. Fitzherbert-Brockholes and Mr. G. Norris Midwood, both of whom until recently had been members of the Council as representatives respectively of Lancashire and Cheshire.

4. Amongst other Governors and Members whose deaths the Society has to deplore are: the Earl of Ducie, the Earl of Listowel, K.P., the Earl of Verulam, the Countess of Carlisle, Viscount Downe, K.C.V.O., C.B., Viscount Long, Viscount Pirrie, K.P., Lady Masham, Lord Middleton, the Right Hon. E. S. Montagu, General the Right Hon. Sir Dighton Probyn, V.C., G.C.B., G.C.S.I., G.C.V.O., etc., the Hon. George Eden, the Hon. Frank Henderson, Lady Theodora Guest, Sir A. E. Bowen, Bart., Lieut.-Col. Sir George Dixon, Bart., Sir T. G. Fermor-Hesketh, Bart., Sir E. S. Hardinge, Bart., Sir Frank Hollins, Bart., Sir H. H. Raphael, Bart., Sir John Stewart-Clark, Bart., Sir H. W. Worsley-Taylor, Bart., Major-Gen. Sir C. F. Hadden, K.C.B., Lieut.-Gen. Sir R. Pole-Carew, K.C.B., C.V.O., Mr. John Anwyl, Mr. G. G. Blantern, Mr. Tankerville Chamberlayne, Major N. C. Cockburn, Mr. Matthew Dixon, Dr. C. M. Douglas, C.B., Mr. M. C. Duchesne, Mr. Rupert S. Gwynne, M.P., Mr. C. F. Kenyon, Mr. J. S. Macdonald, Mr. Kenneth J. J. Mackenzie, Lieut.-Col. A. Hickman Morgan, D.S.O., Mr. John Q. Rowett, Mr. W. S. Royce, M.P., and Mr. E. C. Tennyson-D'Eyncourt.

Number of Governors and Members on Register.

5. The above and other changes bring the total number of Governors and Members now on the Register to 13,371, divided as follows :—

287	Annual Governors ;
155	Life Governors ;
10,693	Annual Members ;
2,215	Life Members ;
21	Honorary Members ;

13,371 Total number of Governors and Members, as against a total of 13,543 on the Register at the time of the last Annual Report.

Presidency.

6. The Council have unanimously decided to recommend to the Annual General Meeting the election of Sir Gilbert Greenall, Bart., C.V.O., as President of the Society, to hold office until the Annual Meeting in 1925.

Changes in the Council.

7. To fill a vacancy in the representation of the Division of Herefordshire, Sir John R. G. Cotterell, Bart., has been elected. Col. Frank Garrett and Mr. Edward C. Ransome have also been elected "Nominated" Members of Council for a period of three years as representatives of the agricultural implement manufacturers.

Mr. Percy Crutchley has been transferred from the list of Vice-Presidents to the list of Trustees, and Lord Desborough, K.C.V.O., has been elected a Vice-President.

Annual Election of Council.

8. The Members of Council who retire by rotation at the next Annual General Meeting are those representing the electoral districts of Group "C," which comprises Berkshire, Cambridgeshire, Cumberland, Glamorgan, Gloucestershire, Huntingdonshire, Kent, Lincolnshire, Oxfordshire, Somerset, Sussex, Warwickshire, Westmorland, Yorkshire East Riding, North Wales, and Ireland. Governors and Members resident in those districts have been communicated with, and the usual procedure is being followed for the election or re-election of representatives for the divisions concerned. An election is also taking place in the county of Leicester, which, owing to its increased membership, is now entitled to elect one additional representative.

Dates of Meetings in 1925.

9. The Council will meet upon the following dates in 1925 : February 4, March 4, April 1, May 6, May 27, July 8 (General

Meeting of Governors and Members in Chester showyard), July 29, November 4, and December 9 (Annual General Meeting at the Royal Agricultural Hall).

Accounts.

10. Under the Bye-laws, the balance-sheet has to be presented for consideration at the Annual Meeting. The Council therefore beg to submit the Balance-sheet, with the Statement of Receipts and Payments for the year 1923. These Accounts were published in Vol. 84 of the *Journal* issued to Governors and Members this year, having been certified as correct by the Auditors appointed by the Members and by the professional Accountants employed by the Society.

Income Tax on the Surplus of Receipts over Expenditure in connection with the Society's Show.

11. In December of last year the Society's Appeal against the assessment made upon them in respect of Income Tax on Show surpluses was heard before the Special Commissioners. Mr. Adeane, the Chairman of the Finance Committee, personally attended the Appeal and gave evidence, but the Special Commissioners eventually disallowed the Appeal and confirmed the assessment.

12. Sir Leslie Scott, K.C., with Mr. J. A. Bremner, instructed by the Society's Solicitors, Messrs. Garrard, Wolfe, Gaze and Clarke, conducted the case for the Society, and, after consideration of the findings of the Special Commissioners, they advised the Society to enter an Appeal from such findings in the High Court as a Test Case and also that a judicial decision might be obtained upon the issue.

13. The Appeal was duly entered, and the hearing took place at the end of June, when again judgment was given against the Society, thus rendering it liable for the Tax.

14. Pending the hearing of the Appeal, however, one or two Members of the Council, who were also Members of the House of Commons, had been endeavouring to obtain the insertion of a clause in the Finance Bill which would have the effect of exempting agricultural societies from Income Tax on show surpluses. Certain amendments to the Bill were tabled by Lord Stanley and Mr. David Davies, and, after the discussion of such amendments in the House of Commons, the Chancellor of the Exchequer, although not accepting the amendments of the private members, agreed himself to draft an amendment which he could accept and which he thought would satisfy the requirements of the case and the views of members on both sides of the House.

15. The amendment was received and added as a Clause to

the Finance Act of 1924, and, in effect, will exempt agricultural societies in the future from income tax on profits or gains on shows.

16. The action of the Society in taking the case before the Special Commissioners and the High Court had done something to give publicity to the grievance, and it had fought the case not only on its own behalf but on behalf of all the agricultural societies in the Kingdom.

17. The thanks of the Council are due to Mr. Adeane for the personal interest and time devoted to the matter, and to Mr. David Davies for his work in Parliament which met with such success.

Leicester Show.

18. Owing to the continuance of Foot and Mouth Disease, uncertainty existed right up to the time of opening as to whether the Society would be permitted to include in their Annual Show at Leicester exhibits of cattle, goats, sheep, and pigs, and this state of affairs naturally gave rise to considerable anxiety. The Council determined to accept entries of stock, and they proceeded with the arrangements on the usual lines in the hope that the conditions at the beginning of July would allow of the Show being held in its entirety. This hope was realised, and, though there was a large number of absentees on account of restrictions in force in several counties, a representative exhibit of British breeds of live stock was to be seen in the showyard. Exhibits in the implement, machinery and other sections were, generally, up to the usual high standard, and when the gates were opened on July 1 there appeared to be every prospect of a financially successful week.

19. The Mayor and Corporation of Leicester and the Members of the Local Committee spared no efforts to promote the success of the Show, and the thanks of the Governors and Members of the Society were heartily accorded to them at the General Meeting held in the showyard on the Wednesday, which was attended by H.R.H. Prince Henry, K.G., who was paying his first visit to the Society's annual exhibition. The early part of the Show period was favoured with fine weather, but each of the last three days was more or less showery, and this, to some extent, probably accounted for the disappointing attendance of 85,531, as compared with 146,277 when the Society previously visited Leicester in 1896.

20. Among the visitors from the Continent was a party of farmers from Holland. Besides attending the Show, these Dutch farmers also had the opportunity of inspecting the farms and live stock of Major J. A. Morrison, at Basildon Park, Reading.

Broadcast Talk on Show.

21. On May 9 last, the anniversary of the foundation of the Society, Sir Gilbert Greenall, Bart., Honorary Director, gave a "talk" on "The Royal Agricultural Society's Show at Leicester" from the London Station (2LO) of the British Broadcasting Company.

Farmers' Milk Competition.

22. Open to farmers supplying milk daily from Leicestershire, Rutland, and Northamptonshire to anywhere within the city of Leicester, a competition was organised in connection with the recent Show on similar lines to those adopted in the Newcastle competition last year. Dr. C. Killick Millard, Medical Officer of Health for Leicester, kindly made the arrangements for taking the samples and transmitting them to experts for chemical and bacteriological examination. There were no entries in the class for Producers of Certified or "Grade A" milk, but the other two classes had eleven entries each. In every case the milk was well above the so-called Government standard, but nine of the twenty-two herds were unable to gain the requisite number of points for freedom from bacterial contamination. It would thus appear that some farmers prefer to pasteurise the milk rather than take the trouble to see that it is taken from premises where cleanliness in every particular is the principal object.

23. The Report of the Steward of Dairying containing the full report on the competition, together with full particulars of the Milk Yield trials and Butter Tests at the Leicester Show, may be had on application to the Society's office, 16, Bedford Square, London, W.C.1.

Plantations Competition.

24. In the Plantations and Estate Nurseries Competition this year, which was restricted to Leicestershire, Rutland, Warwickshire, and Berkshire, there were thirty-two entries. The judges made their tour of inspection in the latter part of June and their report will, as usual, appear in the next volume of the *Journal.* The Society's Special Medal for the best managed Woodlands on an Estate of not less than 1,000 acres in area, as well as the Gold Medal of the Royal English Arboricultural Society for the best plantation, was gained by Dr. Herbert Watney, of Buckhold, Pangbourne.

25. Cheshire and North Wales will form the area of next year's competition.

Orchards and Fruit Plantations.

26. A competition was organised in conjunction with the Federation of British Growers for orchards and fruit plan-

tations situated in the counties of Hereford, Worcester, Gloucester, and Warwick. Seventy-five entries were received in the eight classes, and there were nearly fifty different competitors. The report of the judges will be included in the *Journal.*

27. The area of the competition in 1925 will be Essex, Suffolk, and that part of Norfolk lying east of the River Ouse.

It has also been provisionally arranged that the Competition in the year 1926 shall be confined to Cornwall, Devon, Somerset, and Dorset.

Next Year's Show.

28. The Eighty-fourth Annual Exhibition of the Society will take place at Chester from Tuesday, July 7, to Saturday, July 11.

Judges and Assistant Judges.

29. At the meeting of the Council on July 30, the following scheme for the appointment of Judges and Assistant Judges of the various breeds of horses, cattle, sheep, and pigs was adopted :—

(1) Each Breed Society to submit the names of four judges willing to act, and not having judged the same classes at the R.A.S.E. for at least two years, and not having accepted an invitation to judge the same classes at the London spring shows, Hackney Horse Show, Richmond Horse Show, International Horse Show, or the Show of either the Bath and West of England Society or the Royal Counties Agricultural Society in the same year in which they judge at the R.A.S.E.

(2) Where the entry in any section averages sixty or more individual animals for the last five years, or where owing to the location of the show in any year an abnormal entry is obtained, the judge must nominate an assistant, who, if approved, will be appointed by the R.A.S.E. An abnormal entry (as mentioned above) will not be taken into consideration when arriving at the average the following year.

(3) The judge shall nominate his assistant from a list of assistant judges furnished by each Breed Society, composed of the names of young men of experience, say under thirty years, who are thoroughly familiar with the breed, though, perhaps, not experienced enough in judging to act singly. The name of the assistant judge will appear in the catalogue, but not in the schedule, as in many cases it will be impossible. An assistant judge will receive the same fee, etc., as a judge. The responsibility of making awards will rest absolutely with the judge.

(4) It is hoped by this system to meet the views of those who consider that a judge acting alone is overtaxed in adjudicating upon the larger sections of the Show, and at the same time give young men a fine opportunity of acquiring the art of judging and gaining the confidence so necessary for the work.

In those cases where entries are likely to be few, the Judges Selection Committee is empowered to arrange for one judge to judge more than one section.

Prize List.

30. The total value of the prizes, including Cups, etc., will be about £15,000. The Cheshire Agricultural Society will not hold their county show next year, and their members will receive privileges in connection with the 1925 Exhibition similar to those enjoyed by members of the parent Society. Offers of Champion and other prizes have been received from the following :—Suffolk Horse Society, British Percheron Horse Society, Hunters' Improvement and National Light Horse Breeding Society, National Pony Society, Arab Horse Society, Welsh Pony and Cob Society, Shetland Pony Stud Book Society, Hereford Herd Book Society, Sussex Herd Book Society, Longhorn Cattle Society, Aberdeen-Angus Cattle Society, Argentine Aberdeen-Angus Association, Dun and Belted Galloway Cattle Breeders' Association, Dairy Shorthorn Association, Devon Cattle Breeders' Society, South Devon Herd Book Society, Red Poll Cattle Society, Blue Albion Cattle Society, British Friesian Cattle Society, English Guernsey Cattle Society, English Jersey Cattle Society, Dexter Cattle Society, Co-operative Wholesale Society, Oxford Down Sheep Breeders' Association, Hampshire Down Sheep Breeders' Association, Dorset Horn Sheep Breeders' Association, Wiltshire or Western Horn Sheep Breeders' Association, Society of Border Leicester Sheep Breeders, Wensleydale Longwool Sheep Breeders' Association, Kent or Romney Marsh Sheep Breeders' Association, South Devon Flock Book Society, Swaledale Sheep Breeders' Association, Herdwick Sheep Breeders' Association, Cheviot Sheep Society, Welsh Mountain Flock Book Society, Black Welsh Sheep Breeders' Association, National Pig Breeders' Association, British Berkshire Society, Large Black Pig Society, Lincolnshire Curly Coated Pig Breeders' Association, Cumberland Pig Breeders' Association, Wessex Saddleback Pig Society, Essex Pig Society.

In the Poultry section special Prizes are being contributed by the Dorking Club, White Wyandotte Club, Columbian Wyandotte Club, British Rhode Island Red Club, Indian Runner Duck Club.

Closing of Entries.

31. Intending exhibitors at Chester are reminded that the latest date for receiving entries of horses, cattle, goats, sheep, and pigs is May 1. Entries of Produce close on May 20; entries of Poultry close on May 30.

Applications for space in the Implement, etc., Department must be made not later than March 20.

Schedules and entry forms will be ready for issue early in the New Year.

Demonstration Fruit Plot.

32. Arrangements have been made with a local firm of nurserymen to lay out a demonstration plot as a fruit plantation in the Chester Showyard next year. The plot, which will be half an acre in extent and situate near the Horticultural Exhibition tents, will demonstrate the methods of planting (1) a grass orchard, (2) a plantation of half-standard trees with suitable fillers, (3) a plantation of dwarf trees with suitable fillers, and (4) a plantation of various kinds of bush fruit.

Trial of Sugar Beet Lifters.

33. Prizes amounting to £100 are offered in two classes for Sugar Beet Lifters. The trials, which are to take place in 1925, will, by the courtesy of the directors of Home Grown Sugar, Ltd., be carried out at Kelham, near Newark.

Show of 1926.

34. The Council have accepted an invitation to hold the Society's annual exhibition in 1926 at Reading.

Show of 1927.

35. The invitation received from the town of Newport (Mon.) to hold the Show there in 1927 is now under consideration. The Honorary Director has inspected, and reported favourably upon, the proposed site in Tredegar Park.

Judges for Argentina.

36. As in former years, the Argentine Rural Society requested the Council to appoint gentlemen to act as Judges at the Palermo Show. The panel this year was as under:—

Shorthorn Cattle—Mr. Robert Hornsby, Spring Close, Wigton, Cumberland.
Hereford Cattle—Mr. A. W. Trotman, Byford Court, Hereford.
Aberdeen-Angus Cattle and Clydesdale Horses—Major Archibald Whyte, Inverquharity, Kirriemuir, N.B.
Lincoln and Blackface Sheep and Shire Horses—Ernest Addison, Riby Grange, Stallingboro', Lincolnshire.
Pigs—Mr. E. Thomlinson, Hall Farm, Hutton Wandesley, Marston, York.

Chemical Department.

37. The number of samples (340) sent by members, for analysis, did not differ greatly from those (394) submitted in 1923. A revived interest has been shown in the important matter of the liming of land, and various samples of lime, chalk, and limestone were submitted during the year, these frequently showing marked differences as regards quality. A case of *lathyrus* poisoning, from the use of a particular kind of Indian peas, occurred, in which several valuable horses were lost.

The decision to renew the issue of "Occasional Notes," giving information from the various scientific departments of the Society, will be welcomed in many quarters, and will, it is hoped, quicken interest in the Chemical Department and bring before members from time to time matters of current importance, without their having to wait for the one yearly issue of the *Journal.*

38. Perhaps the most important matter in which the Chemical Department has been especially concerned was the setting up —by the late Minister of Agriculture—of a Departmental Committee to consider the working of, and advisability of introducing changes in, the Fertilisers and Feeding Stuffs Act. The need of revision, or preferably of a new Act altogether, has long been urged by this Society, which, for the purpose of considering desirable alterations, called together a Committee comprising representatives of the different interests concerned. The information gained in this inquiry was put before the Departmental Committee of the Ministry. This latter body, after the holding of several meetings and the hearing of selected evidence, presented early in the year a unanimous report which has since received the general approval of agriculturists and traders alike, and which, if carried into effect, will, it is universally felt, do much to ensure the better and more satisfactory operation of this very important measure. The chairman of the Departmental Committee was Lord Clinton, and the Society's Consulting Chemist, Dr. Voelcker, was one of the members.

39. To the recently issued *Journal* of the Society Dr. Voelcker contributed a summary of the thirty-eight years' work of the Woburn Experimental Farm which will, no doubt, serve as a useful means of reference to a long series of agricultural inquiry conducted under the Society's auspices.

Botanical Department.

40. The most outstanding characteristic of the work of the Botanical Department during the past twelve months was the number of inquiries prompted by outbreaks of fungoid diseases on farm and orchard crops. Unfavourable weather conditions were responsible for this, and the continuance of these conditions

made it almost impossible to check the diseases at all effectively. It is to be feared that the losses due to blight in potatoes, the unusual outbreak of brown rust in wheat, and scab in both apples and pears, will prove far larger than they do on an average of years.

41. The failure of autumn-sown crops, especially of oats, occurred on a greater scale than usual and led to many inquiries as to the best methods of dealing with crops where the failure had been only partial, and for substitute crops where it had been too extensive to admit of anything except ploughing out.

42. Grassland inquiries showed a falling off and were confined almost exclusively to the management of fields sown either one or two seasons previously.

Zoological Department.

43. The work of the Zoological Department has been greatly affected by the unusual character of the past season. Weather influences have had such an effect on most crops that insect attacks have been relatively unimportant, and applications for advice have been comparatively few in number. Some pests, such as aphis, have been practically absent, and others have made a very late appearance, so that the harm done by them has been much reduced. From the complaints received it would appear that slugs and snails have been responsible for more damage than any of the usual farm pests.

44. This peculiarity has been less marked in the fruit section. Aphis, so prevalent in 1923, has done comparatively little harm, but many other fruit pests have been at work, and it is noticeable that the caterpillars of tortrix moths are in some districts becoming a serious pest, comparable to the winter moth in the injury they inflict.

45. As usual, a considerable number of animal parasites have been sent for identification.

Animal Diseases.

46. The outstanding feature of the year with regard to contagious diseases has again been the widespread occurrence of foot-and-mouth disease. No fewer than 256 outbreaks were confirmed in the first week in January, and during the first twelve weeks they numbered 1,132. In the following twelve weeks they had fallen to 160, and after that until the middle of August from 11 to 20 outbreaks were confirmed weekly. Subsequently the disease steadily declined, until in the first week of October no outbreak was reported. Unfortunately a fresh outbreak occurred in the following week, and, before the end of October, 18 other outbreaks had been confirmed, bringing the total number of outbreaks since the beginning of the year to 1,494. Anthrax has been prevalent to about the same extent

as last year, but there has been a slight decline in the number of outbreaks of swine fever, sheep scab, and parasitic mange. Only one case of glanders has been reported during the year, and that occurred in the last week of May.

47. Resolutions have during the year been passed by the Council:—

(1) Expressing the opinion that there should be one authority only for the control of animal diseases in each geographical county;

(2) Requesting the Minister of Agriculture either to prohibit the landing in Great Britain of hay or straw used for packing goods coming from abroad, or to provide that all such packing shall be burnt at the port of landing;

(3) Urging that further steps should be taken by the railway companies to expedite transit of live stock to avoid untrucking for watering or feeding during journey;

(4) Advocating that research work in connection with foot-and-mouth disease should only be conducted by people authorised to do so by the Minister of Agriculture and only at places sanctioned by him.

48. The Council have been informed that further legislation would be necessary to give effect to the proposal put forward in No. 1, but that the matter is receiving the Ministry's consideration; No. 2 has been referred to the Departmental Committee on Foot-and-Mouth Disease now sitting; and steps have been taken by the railway companies to deal as far as possible with No. 3.

Foreign Animals Order, 1924.

49. The Foreign Animals Order of 1924, which came into operation on July 15, lays down that the master of any vessel which enters any port in Great Britain for the purpose of discharging any cargo shall, if within the sixty days immediately preceding such entry the vessel has had on board any animals shipped to a port outside Great Britain from a port in any country which was at the time of shipment a scheduled country for the purposes of the Foreign Animals Order of 1910, forthwith make and deliver to the Ministry of Agriculture a declaration in writing showing (1) the port and date of shipment of such animals; (2) the number and description of such animals; (3) the number of animals (if any) which died or were slaughtered during the voyage, and the cause, or supposed cause, of death or slaughter; (4) the number and description of animals disembarked, and the port and date of disembarkation; (5) particulars as to the health of the animals during the voyage. Further, the representative of the Ministry of Agriculture may stop altogether the discharge of such a cargo, or may make such stipulations regarding the vessel as appear to him to be neces-

sary, if the requirements are not observed. If the master of the vessel fails to make the declaration, both the owner and the master of the vessel are subject to heavy penalties.

50. There is every reason to hope that this Order will be the means of preventing the recurrence of any further cases such as that last year in connection with the steamer *Hartington*, to which reference was made in the last report.

Committee on Foot-and-Mouth Conditions.

51. At their meeting on July 30 the Council appointed a Committee to consider conditions in relation to foot-and-mouth disease. The Committee met on October 2, and drew up the following recommendations, which have been adopted by the Council, and forwarded to the Ministry of Agriculture :—

(1) The Committee are thoroughly in accord with the Recommendation of the Departmental Committee that there should be one authority only for the administration of the Diseases of Animals Acts in each geographical County, and that such authority should include representatives of the County and any borough local authorities therein.

(2) The Committee are of opinion that standardised regulations should be issued to all local authorities setting out what they are to do in suspected and confirmed outbreaks in order that there may be uniformity of action.

(3) The Committee recommend that the Ministry of Agriculture should issue a general order to all local authorities providing that on a suspected case of Foot and Mouth Disease being reported, a standstill order covering a radius of five miles should immediately be put into force until the case is confirmed or otherwise.

(4) The Committee recommend that on the confirmation of an outbreak movement should be prohibited over a 15 miles radius of the infected place, but that if no further outbreak occurred within 7 days the area should be reduced to as small a radius as possible drastically controlled.

(5) The Committee are of opinion that Inspectors who are present at the killing of infected animals and the burning of their carcases, should not be employed also for inspecting healthy stock.

(6) The Committee are of opinion that more stringent regulations should be issued and enforced concerning Inspectors and Slaughtermen as regards disinfection.

(7) The Committee consider that the Ministry of Agriculture might with advantage tighten the Regulations governing Markets and Cattle Dealers.

Skilled Labour and Long Service.

52. Under the scheme adopted by the Council in February, medals and certificates are offered by the Royal Agricultural Society in certain districts each year for skilled agricultural labour and long service. The awards are made through the county agricultural societies, and for the current year are confined to Leicestershire, Rutland, Warwickshire, and Berkshire.

It was hoped that it might have been possible to announce the names of the various winners this year at the Annual Meeting, but, owing to the delay in securing the returns from the counties, the announcement of the awards has had to be postponed until the first meeting of the Council in 1925.

53. The area in which medals and certificates will be issued next year will be Cheshire and North Wales.

Establishment of Institute for Research in Agricultural Engineering at Oxford.

54. The Council have on several occasions made application to the Ministry of Agriculture for a grant of some portion of the Development Fund for trials of agricultural implements, but have on each occasion been informed that it would be impossible to make such a grant, unless the Society could put forward a definite scheme of trials with particulars of the implements or machines to be tested.

55. After some pressure upon the Ministry, the Council were eventually informed that it was proposed by the Machinery Advisory Committee of the Ministry that a grant should be made for the foundation of an Agricultural Engineering Institute at Oxford.

56. In February last the Convocation of the University at Oxford agreed to accept the offer of the Ministry of Agriculture to found a Research Institute, and the Vice-Chancellor of the University stated that it would be necessary that the Institute should carry out its work in close co-operation with the Society.

57. A Director of the Institute has been appointed, and, as soon as the administrative staff and the necessary buildings and equipment have been arranged for, it is hoped that some progress will be made in the testing of agricultural machinery, with which the Society may be closely associated.

Already a demonstration has taken place of an improved process for the artificial drying of crops.

Research Committee.

58. In the volume of the *Journal* issued this year there appears a report on the experiments with cereals at the Norfolk Agricultural Station. Arrangements have been made by the Station for the production of a stock of pure seed of two varieties of barley noted for the excellence of the malting samples produced, which were also good croppers and likely to do well in

a wide range of conditions. The varieties chosen were *Plumage Archer* and *Beaven's Improved Archer*, pure seed of which was obtained with some difficulty. Enough seed was produced in 1923 to enable the scheme to be extended in the present year not only in Norfolk but in several other counties where barley is grown with success. It is hoped that the stock of pure seed available for the next season will be considerable. Members of the Society will, on application to the Norfolk Agricultural Station, St. Faith's, near Norwich, before the end of January, have an opportunity of purchasing a portion of this seed, and so demonstrating its advantages in different parts of the country.

59. Yield trials on oats under the supervision of the National Institute of Agricultural Botany have been carried on at five centres in different parts of the country during the past season. A report is being prepared and will be issued in due course.

60. Experiments on the improvement of grassland are proceeding at Shoby, Leicestershire, and at Sawley, near Clitheroe.

61. Lucerne seed inoculation and green manuring experiments at a number of different places are in progress under the supervision of the Rothamsted Experimental Station.

62. An experiment carried out by Dr. Charles Crowther at the Harper-Adams Agricultural College to test the merits of home-produced foods for pig-feeding has been concluded, and a full report thereon appears in Vol. 84 of the *Journal*, published this year.

63. It is intended to carry out a feeding experiment with bullocks during the winter at the Norfolk Agricultural Station, in accordance with a scheme drawn up by Prof. T. B. Wood, F.R.S., and arrangements have been made to continue the Silage Experiments in East Suffolk under the supervision of Mr. A. W. Oldershaw.

The whole question of the applicability of Electricity to farming requirements is being explored on behalf of the Committee.

64. The Society's Gold Medal (which carries with it Life Membership of the Society) for Agricultural Research was again offered this year, the regulations having been amended by the omission of the age limit; and a number of essays were sent in. A Gold Medal has been awarded to Mr. H. J. Vaughan, of St. Mary Bourne Vicarage, Andover, for his paper entitled "A Comparison of the Economics of Production on Grass and Arable Farms," and an extra Gold Medal, which was not awarded last year, to Mr. W. L. Davies, of University College, Reading, for a monograph on "The Proteins of Green Fodder Crops."

65. It has been decided to revive the issue of "Occasional Notes," under the direction of the Research Committee. These will be sent out to Governors and Members twice yearly. The first issue is being made with this Report.

Revision of Bye-laws.

66. On the recommendation of the special committee appointed last year to consider the question of the Bye-laws and Standing Orders for the regulation of the procedure at Council and other meetings, a number of alterations and additions were passed by the Council in December last. Further amendments to these bye-laws were sanctioned by the Council at their February meeting this year.

Queen Victoria Gifts.

67. A contribution of £140 has been made by the Trustees of the Queen Victoria Gifts Fund to the Royal Agricultural Benevolent Institution for the present year.

Representatives on other Bodies.

68. Major Gerard Buxton has been appointed, in succession to Lord Roundway, as the Society's representative governor on the Dauntsey School Foundation, and Lord Harlech has been re-appointed for a further period as a Governor of the Harper-Adams Agricultural College.

Cattle Pathology Medals.

69. In the competitive examination for the Society's prizes for cattle pathology, the Silver Medal was this year gained by Mr. T. N. Gold, of 7 Church Green East, Redditch, and the Bronze Medal by Mr. J. C. Davidson, of Bridge Street, Hungerford.

National Diploma in Agriculture.

70. At the Twenty-fifth Annual Examination held at the University of Leeds from April 2 to 9, fifty-three candidates were successful in gaining the National Diploma in Agriculture. See list on pp. 407 and 408.

National Diploma in Dairying.

71. The Twenty-ninth Annual Examination for the National Diploma in Dairying was held at the University College and British Dairy Institute, Reading, for English students, from September 5 to 13, and at the Dairy School for Scotland, Kilmarnock, for Scottish candidates, from September 19 to 27. Seventy-one candidates were examined at the English Centre, of whom forty-one satisfied the Examiners, three reaching the Honours standard. Sixty candidates presented themselves at the Scottish Centre, of whom twenty-five passed, including four with honours. See lists on pp. 411 and 412.

By Order of the Council,
T. B. Turner,
Secretary.

16 Bedford Square,
London, W.C.1
November, 1924.

REPORT OF THE RESEARCH COMMITTEE.

WORK COMPLETED AND IN PROGRESS.

THE Research Committee was set up in the year 1922 to organise and to finance scientific and technical research work for practical agriculture and to administer grants authorised by the Council of the Society for this purpose. Reports of some of the work already initiated by the Committee have appeared in the Society's *Journal* (Vol. 84, 1923), but, for the information of Council, the Committee now begs to submit the following summary of work completed and in progress:—

EXPERIMENTS ON WHEY.

It will be remembered that in 1922, soon after their formation, the Research Committee undertook an investigation into the utilisation of whey. At that time, the large amount of excess whey from many cheese factories was contaminating rivers and injuring town drainage systems.

The Committee employed Mr. L. Harding, who worked first at Cambridge and then in an experimental factory in Dorset. Mr. Harding improved the usual foreign methods for the extraction of milk-sugar from fresh whey and, more important, worked out a method of condensing whey which gave a paste easily transported and of good keeping qualities. From this condensed whey, milk-sugar of excellent quality was extracted.

Owing to a combination of climatic and economic causes, the amount of whey in the country has been less than normal for the last two years, but it now seems to be increasing again.

For the last six months Mr. Harding has been employed by the Ministry of Agriculture to continue his work on a larger scale at their Research Factory at Haslington, near Crewe. Developing the methods he discovered when working for the Society, he has produced good milk-sugar from condensed whey, and further, has shown that the residue can be used, either alone or when dried on grain offals, as a food for animals.

Feeding experiments at several places show the value of this substance. One such experiment, carried out on pigs by Mr. Adeane, at Babraham, is now nearing completion. It seems likely that the work done for the Society may in due time prove of great use to farmers.

Further experiments are being carried out by Captain Golding, of the National Institute for Research in Dairying, Reading, where a set of roller driers have been installed. The fitting of the roller driers was completed in June, 1924, and trials produced a satisfactory product when the reaction of the whey was suitably adjusted. It appeared, however, that the cost of evaporation would be too high, and a method was devised by which this could be reduced and the efficiency of the plant increased by the utilisation of the waste steam from the rolls for pre-heating the feed of whey, and of the waste heat from the rolls for pre-concentrating the whey.

An improvised apparatus was made of corrugated iron and wood, and, though defective in many respects, it gave sufficiently encouraging results. At this time Mr. J. C. Stead suggested improvements which, together with the original idea, were embodied in a Provisional Specification applied for by the Research Institute in the names of J. Golding and J. C. Stead, and termed "Improvements in or Relating to Evaporating Apparatus." The application has been approved and, with the help of a grant from the Ministry of Agriculture, a motor has been purchased, and further developments are in progress which include the fitting of a pre-heater and concentrator to replace the improvised experimental apparatus.

The dried whey produced has been tested in pig-feeding experiments, and has given results which, it is said, clearly demonstrate its high value as a food constituent.

Captain Golding hopes, during the coming season, to be in a position to submit a report on his experiments, for publication if the Research Committee think fit.

The value of milk by-products in pig feeding has also been demonstrated very clearly by the experiments carried out by Dr. C. Crowther. A full report of Dr. Crowther's work appeared in the Society's *Journal* for 1923.

SILAGE EXPERIMENTS.

These are being conducted under the auspices of the East Suffolk Education Committee.

The object of the experiments, stated briefly, is to compare the milk-yield of cows fed on a ration based mainly upon silage with one chiefly based upon roots. The first experiment in the early months of 1924 was conducted on two farms occupied by Messrs. C. C. Smith & Sons. The cows were selected from the herds of two separate farms, and were placed at the disposal of the Committee free of charge by Messrs. Smith, who also provided all cattle food necessary.

The results obtained showed that roughly 5 per cent. more milk was given by the cows upon the roots ration, and this was regarded by Professor Wood and Mr. Udny Yule, to whom the figures were referred, as a significant difference. Evidently, therefore, the root ration fed in this case must be regarded as slightly superior to the silage ration for milk production. Possibly, therefore, the silage ration used had not such a high content of digestible protein as was assumed when drafting out the rations. If this surmise is correct, a rather larger quantity of silage would have been necessary to equalise the rations. The combination of silage with carbohydrate foods—crushed oats and a small quantity of mangolds—proved to be a sound method of feeding.

This raised the important question of the extent to which it might be possible to devise a ration which would involve the feeding of very little, if any, concentrated foods for the first two gallons of milk, by using a fairly heavy ration of silage (to reduce the quantity of concentrated foods, rich in albuminoids) combined with an equally heavy ration of roots, which are usually the cheapest carbohydrate food available. This is a point of great importance in view of the urgent necessity of feeding dairy cows in the cheapest possible way, and at the same time giving them an ample supply of the necessary food materials required for the manufacture of milk.

To test this, the second experiment, now in progress on the farm of Mr. H. G. Smith Rewse, Nettlestead Chase, Ipswich, was commenced in January, 1925.

As far as possible, rations practically equal in composition have been arranged. The silage ration embodies some mangolds (providing the necessary carbohydrates), rendering necessary the inclusion of very little concentrated food, and would be a very cheap way of feeding cows, if successful. The actual rations fed for maintenance and 1½ gallons of milk are:—

	Starch Equivalent	Digestible Protein
I.		
80 lb. Mangolds	5·6	0·40
10 lb. Lucerne Hay	2·5	0·70
1 lb. Dec. Cotton Meal	0·73	0·41
1 lb. Beans	0·66	0·19
1 lb. Oats	0·60	0·08
	10·09	1·78
II.		
21 lb. Mangolds	1·47	0·10
50 lb. Silage	6·00	0·74
7 lb. Lucerne Hay	1·75	0·49
1 lb. Dec. Cotton Meal	0·73	0·41
	9·95	1·74

With both lots of cows, the same mixture of concentrated food for each additional gallon of milk above 1½ gallons is used, but until further work has been done on the cost of making silage a complete financial comparison of the rations is not possible, though the saving in concentrated food in No. II is apparent.

Mr. A. W. Oldershaw (Education Office, County Hall, Ipswich), under whose supervision the experiments are being conducted, has expressed his willingness to take any Member to see what is being done. Mr. Smith Rewse's farm is situate about 7 miles from Ipswich.

YIELD TRIAL OF OATS.

Early in 1923, the Research Committee, being aware of the lack of information available concerning the relative merits of the various spring oat varieties on the market, delegated to the National Institute of Agricultural Botany the carrying out of a series of Yield Trials of Oats on a field scale in a principle devised by Dr. E. S. Beaven, of Warminster, and already successfully employed by the Institute for determining the comparative yields of varieties of wheat and barley.

In order that all the varieties should be given an equal start in the trials, ½-acre plots of all those to be tested were grown in 1923 in the same field under identical treatment at St. Ives, Hunts. The produce from these plots was used to seed the trials proper, which were carried out in 1924 on the drill-strip method. The five stations at which these trials took place were:—

Cambridgeshire	..	At Babraham.
Gloucestershire	..	At Lydney Park.
Lincolnshire	..	At Kirton, nr. Boston.
Lancashire	..	At Bickerstaffe, Ormskirk.
Hampshire	..	At Sparsholt, Winchester.

The varieties tested were: *Superb*, *Black Tartarian*, *Potato*, *Supreme* and *Victory*. The standard control variety with which they were compared was in each case *Abundance*.

Owing to bad weather, with heavy storms of wind and rain, which twisted and laid the contents of the alternated strips of the variety with its control, it was reluctantly decided to abandon the trial at Lydney Park.

Although the other trials were well distributed over the country on soils of very different nature, *Abundance* and *Victory* have produced, almost without exception, the best results as far as yield of grain is concerned. Their position as regards quality is generally good, and the only character in which they fall short is the production of straw, where, almost without exception, *Black Tartarian* and *Potato* excel.

A full Report of these Trials has been prepared, and appears in the present volume of the Society's *Journal* (pp. 270–288).

GREEN MANURING.

Green manuring trials were commenced in 1924, but no results will be available until the end of the present season. The green crops sown in 1924 were either turned in last autumn, or will be turned in this spring. The effect of this treatment on the yield of the succeeding main crops will be shown after harvest this year.

The abnormally wet summer of 1924 made it impossible to start trials at several of the centres where arrangements had been made, but it is hoped to commence work at these centres during the coming season.

The experiments are designed to test two alternative systems of green manuring :—

A.—Summer catch crops turned in before winter corn.
B.—Winter catch crops turned in before roots.

The first of these two alternatives, being a preparation for a grain crop, may be expected to find useful application in the Eastern counties of England (roughly, to the East of the area with a rainfall of over 30 in. per annum) in which the greater part of the corn-growing land of England is situated. In general the method can be practised only on (*a*) fallow land, (*b*) early-ploughed seeds ley, (*c*) land that has carried a special crop that is got off early, such as a silage or soiling crop.

Trials of this method are in progress at six centres, one in the West (Gloucestershire) and five in the East (Kent (2), Suffolk, Beds. and Northants.), mustard being the chief green crop used. Annual sweet white clover ("Hubam" strain) has also been tried at some of the centres, but without much success. In Suffolk, lupins have been used, as a preparation for rye. There is much scope for the introduction of a rapid-growing annual crop, preferably a legume, for use as an alternative to mustard. The results of the test at Rothamsted give a forcible illustration of the value of the method. Mustard was sown on the bare fallow, after cleaning, on August 20. It was turned under on October 18 and winter oats were drilled at once. The yield of oats were as follows :—

Basal Manure	Yield of Oats. Bu./acre		Increase due to Mustard	
	After mustard ploughed in	After fallow (no mustard)	Bu.	Per cent.
None	43·3	25·0	18·3	73
5 tons town refuse . . .	51·8	27·1	24·7	91
10 tons town refuse	49·3	30·6	18·7	61
Average	48·1	27·6	20·5	74

The turning in of mustard thus added, on the average, 20 bushels per acre of oats. The cost per acre, for mustard seed and the extra cultivation operations involved in drilling and in turning the crop under, amounts to 18*s.*, whilst the increased yield of oats was worth 79*s.* 6*d.* per acre, without reckoning the value of the extra straw, 9 cwt. per acre.

The turning in of winter catch crops before roots where practicable may prove to be of great importance. Climatic factors play a great part, since the green crops have to pass through the winter ; if this is too cold crops sown in the autumn do not usually make sufficient growth, by the time when the land needs to be prepared for roots, to produce any marked effect on the root yield. It is probable that only within regions with an average annual rainfall of between 30 in. and 40 in. can the present sort of autumn-grown green crops be grown successfully for turning under in the spring before roots.

The problem therefore arises of finding a system for green manuring of roots which is applicable to the colder Eastern and Northern districts. It is proposed to devote special attention to this during the coming season. A continental method of undersowing green crops in corn in the late spring is being tried : this is already much in vogue in certain of the Eastern counties, especially among potato growers in Bedfordshire and Lincolnshire. The earlier sowing of the green crop ensures its being well established when the corn is cut, and it is thus in a position to make better growth during the winter and to take advantage of any spells of favourable growing weather. The influence of the under-sown green crops on the yield of the corn in which it is sown, and the liability of difficulties at harvest time owing to green stuff in the bottoms of the sheaves, will be carefully observed.

The possibility of using green manuring for the sugar beet crop will be tested and the effect of green manures on the yield, and also on the sugar content, of the beets will be studied.

The relative economic value of folding green crops to sheep and turning them in direct is being studied at certain centres. The effect of the type of soil in modifying the influence of climatic conditions is being investigated. This effect is likely to be most marked in borderland districts where the possibility of growing green crops successfully is largely a matter of season. Under these conditions it is probable that successful results might be obtained on a light warm soil, whilst on a heavy wet soil the crop would fail.

Finally, it is intended to lay out small plots in the new experimental garden at Rothamsted, on which the suitability of possible new crops, such as Korean Clover (*Lespedeza*) and another Legume (*Dalea*), for use as green manure crops under British conditions, will be tested.

LUCERNE EXPERIMENTS.

(*a*) *Seed Inoculation.*

In the spring of 1924 extensive field trials were started in order to test the value of lucerne inoculation in Great Britain. The inoculation of leguminous plants with cultures of the beneficial nitrogen-fixing bacteria which normally infect and produce nodules on their roots, has hitherto been tried in this country only in a sporadic manner and with varying success. In the case of the majority of legume crops, the special varieties of organism that infects them are almost universally present in soil. The case of lucerne is peculiar, firstly because the variety of the nodule-producing organism that infects it is not found in other commonly grown crops, and secondly, because lucerne is not yet extensively cultivated in this country, and consequently soils in many districts are unlikely to be naturally infected with the lucerne nodule organism. The great successes that have lately been achieved with lucerne inoculation in Scandinavia and elsewhere suggested that careful trials should be made in this country. The object of these trials being to ascertain whether there are districts in Great Britain where inoculation is advantageous, it was necessary to make trials at a large number of centres. Trial plots were started therefore last spring to compare the growth of inoculated and uninoculated seed. In the majority of places eleven plots were laid down, alternate plots being drilled respectively with inoculated and uninoculated seed. In a few cases smaller trials are being made.

On account of the delay in sowing and in early growth due to the bad summer, definite results from most centres will not be obtained until the coming season (1925). There were five places, however, where the difference due to inoculation was striking even in the early growth last summer. It is interesting to note that these counties lie outside that area of England where lucerne is extensively grown. This suggests that in these areas, where lucerne is a comparatively rare crop, inoculation is necessary to obtain the best results owing to the absence of the lucerne bacteria from the soil. To test the value of inoculation in districts to the west of the lucerne-growing area a number of new trials this spring are projected. The strong growth of lucerne obtained by inoculation last year in Shropshire, Gloucestershire and Wiltshire raises the hope that the area of successful lucerne growing may be extended westward by this means. To the north of the lucerne-growing area, the problem is rather a different one, for there the cold climate is probably unsuitable for the *Provence* variety, the one usually grown. It is therefore proposed to combine inoculation trials in the north with trials of *Grimm* and other cold-resisting varieties of lucerne, and arrangements are being made for such trials at a number of centres.

During the past year laboratory work has been carried out in the hope of improving the methods of seed inoculation. In this process there are two stages that have to be considered, the growth of the bacterial cultures in the laboratory and the actual process of seed inoculation. The medium upon which the cultures are grown for issue to farmers has been the subject of investigation. It was found that the medium used in Scandinavia for this purpose induced but a slow growth of the bacteria, so that delay often occurred in supplying fresh cultures. A new medium has now been obtained on which growth of the bacteria is satisfactorily rapid. The second point to be considered was the actual method of inoculating the seed. This has usually been effected by wetting the seed with a suspension of the bacteria in skim milk. After the seed is sown, the bacteria pass through the soil and enter the roots of the seedling plants. The motion of the bacteria in soil and the causes which induce this motion have therefore an important bearing on the question of inoculation. An investigation into this problem has resulted in a modification of the method of inoculation which has, in pot cultures, greatly increased the number of nodules produced and also increased the crop as compared with the older method. It is hoped to make a test of this modified method of inoculation on a field scale during the coming season.

(b) *Cultivation Experiments.*

Experiments regarding different methods of sowing, hoeing and harrowing the lucerne crop have been started at the farm of the National Institute for Research in Dairying, Reading, under the supervision of Mr. James Mackintosh. Here an area of about 4 acres, which had a crop of winter oats in 1923, was ploughed and limed at the rate of one ton per acre in April, 1924. A good seed-bed was obtained, and the lucerne was sown at the rate of 24 lb. per acre, in June, on the chess-board plan. Of the twenty-four plots, twelve were drilled, and twelve broadcasted.

The plants came up well, but the adverse season interfered somewhat with the scheme of cultivations which had been planned. The drilled plots which received hand-hoeing were, however, infinitely superior to the others.

RESEARCH IN MALTING BARLEYS AND DISTRIBUTION OF PURE SEED OF APPROVED VARIETIES.

A good deal of work has been carried out on the farm of the Norfolk Agricultural Station, at St. Faith's, near Norwich, and in other parts of Norfolk, in the testing and growing-on of varieties of malting barley.

The scheme, which was initiated in 1922–23, was repeated in 1923–24, and is being continued this year.

Valuable information has been collected about the technique of tests with cereals, and a good deal of pioneer work in new methods of experiment has been done.

In addition to the Station's activities in definite research in connection with cereals, a step has been taken which is thought to be of great value to farmers throughout the country, and which, while it is a new departure, is in keeping with the general trend of scientific development of the times. It is realised that the weakest point in the chain leading from agricultural research to commercial farming occurs at the junction of the two. It has been observed that time after time promising discoveries have been lost to practice or much delayed, because there is a gulf between experimenters and definite practitioners. At the best of times, information and new ideas spread slowly among agriculturists, and when no easy road exists between research and practice they are often lost altogether before they can do good.

In the case of the Norfolk Station an attempt has been made to get over the difficulty by the production of a quantity of pure seed of approved varieties of malting barley for distribution to farmers in different parts of the country.

Early in 1924, 40 qrs. of seed, consisting of *Plumage Archer* and *Beaven's Improved Archer*, were purchased for growing-on by nine members of the Society selected by the Research Committee as farming in various parts of the country, some of them not recognised as barley-growing districts, and it was arranged that the Society should have a lien on half the produce of the growers. Under this arrangement, nearly 400 qrs. of seed were available for disposal to Members of the Society this year (1925).

The value of a supply of pure seed of approved varieties is admittedly great, and, in the case of barley, where quality is of equal commercial importance with quantity, the point is doubly stressed.

The abnormal growing season and difficult harvest of 1924 have made it impossible to compare the values of these new barleys when grown on different soils and under varying climatic conditions.

The assistance given by the Society has enabled the original scheme to grow to really useful proportions, and has allowed the Station both to make useful contributions to research in connection with field experiments, and to bring the results of experimental work into close touch with the practical farmer.

GRASSLAND IMPROVEMENT.

These experiments are being carried on at two centres: one, at Shoby, in Leicestershire, under the auspices of the Leicestershire County Council, and the other at Sawley, near Clitheroe, on land belonging to Mr. Arthur Holgate, who is bearing the whole of the cost of the experiment.

For the first year, the land in both cases was grazed, but was untreated, in order to ascertain what was the natural variation of the several plots.

(*a*) *Shoby Experiments.*

For these experiments five plots were laid out, arranged as follows :—

Plot I.—Basic slag, supplying 100 lb. of phosphoric acid per acre.

Plot II.—The same, with the addition that the cattle and sheep received a ration of undecorticated cotton cake.

Plot III.—No manure or cake.

Plot IV.—Basic slag—double the quantity on Plot I.

Plot V.—North African Phosphate, supplying the same quantity of phosphoric acid per acre (*i.e.* 200 lb.) as Plot IV.

Prior to the commencement of the experiment the stock were carefully weighed and arranged in lots of even weight, on each plot. They were weighed, subsequently, every 28 days and also at the end of the year's trials, the final results being as follows :—

SUMMARY OF LIVE WEIGHT INCREASE PER ACRE, 1924.

Plot I		Plot II		Plot III		Plot IV		Plot V	
Slag.		Slag and Cake		No Manure		Slag		North African Phosphate	
Cattle lb.	Sheep lb.	Cattle lb.	Sheep lb.	Cattle lb.	Sheep lb.	Cattle lb.	Sheep lb.	Cattle lb.	Sheep lb.
226	43½	236	42½	186	40	210	47	193	83

It is, of course, impossible to draw any definite conclusions from the results of one year's experiments.

(*b*) *Sawley Experiments.*

The experiments were started in the spring of 1923 at Bank Top Farm, Sawley, the property of Mr. A. Holgate, who is bearing their whole cost, and they are being carried out by Professor Somerville with the assistance of the Department of Agriculture, University of Leeds.

The experiments are carried out on three plots arranged as follows :—

Plot I. Basic Slag.
Plot II.—Basic slag + lime.
Plot III.—No treatment.

The results are measured by the increase of live weight in the cattle and sheep grazed on the plots. No treatment was given to any of the plots during the first year, so that some idea of their uniformity might be gained by comparing the increases in live weight obtained.

During the first year (1923) three plots, each of 5⅓ acres, were laid out and 3 yearling polled heifers and 5 hoggs were turned on on June 20 and remained till October 20. They received no concentrates. The stock were weighed at the beginning of the experiment and subsequently on August 20 and October 20. The hoggs were unshorn and the fleeces of each lot after shearing were weighed separately. The increases of weight during the four months were as follows :—

SUMMARY OF LIVE WEIGHT INCREASES PER PLOT (5⅓ ACRES) FROM JUNE 20 TO OCTOBER 20, 1923.

Plot I		Plot II		Plot III	
3 heifers	5 hoggs	3 heifers	5 hoggs	3 heifers	5 hoggs
cwt.	cwt.	cwt.	cwt.	cwt.	cwt.
5·39	1·56	6·04	1·34	5·11	1·69

During the second year (1924) owing to difficulties of cartage and bad weather, the applications of lime and slag to the plots were not completed till April 24 and May 16 respectively. The analyses and applications of the lime and slag were as follows :—

Rough lime, 70 per cent. CaO, 6,350 lb. per acre to Plot II.
Basic slag, 33·5 per cent. total phosphates, of which—

63·7 per cent. was citric soluble,
74·6 per cent. passed 120-mesh sieve.

1,340 lb. per acre applied to Plots II and III.

On May 24 the plots were stocked as under, the stock having been previously weighed :—

Plot I . .	5 heifers ..	8 hoggs.
Plot II . .	5 heifers ..	8 hoggs.
Plot III . .	3 heifers ..	5 hoggs.

The stock in this year were of an inferior quality to those of the previous year. They were weighed every 28 days, but before the June weighing one of the hoggs on Plot I died and was not replaced. An examination of the weights shows that the heaviest average increase in the heifers occurred on the untreated plot (III) in June and that the average increases for July and August are heavier on Plot II than on Plots I and III. The increases of weight during the four months were as follows :—

SUMMARY OF LIVE WEIGHT INCREASES PER PLOT FROM MAY 24 TO SEPTEMBER 19, 1924.

Plot I		Plot II		Plot III	
5 heifers	8 hoggs	5 heifers	8 hoggs	3 heifers	5 hoggs
cwt.	cwt.	cwt.	cwt.	cwt.	cwt.
9·20	2·24*	10·81	1·99	6·27	1·33

* Increase of weight of 7 hoggs, no account being taken of the one that died.

It is proposed to continue the experiments in 1925.

BULLOCK FEEDING.

The practice of using oil seed cakes and meals as an addition to the old-time ration of roots and straw for winter beef production dates back only to about 1840. At that period it was generally accepted that fat could only be stored in the body of an animal as a result of the consumption of large quantities of albuminoids and oil in which oil seed cakes and meals are typically rich.

Since then it has been shown that carbohydrates are the main source from which animals produce their fat, and that the consumption of albuminoids beyond the minimum requirement does not increase the rate of fattening. In spite of this, the practice of feeding large rations of oil seed cakes and meals still continues. The experiment, now in progress at the Norfolk Agricultural Station, is intended to investigate the economy of reducing the ration of oil seed cake and meal in the winter feeding of cattle.

Two lots (15 each) of similar store bullocks are being fed in yards side by side. In each case the ration consists of barley straw and swedes. In one lot the ration is supplemented with just enough cake to bring up the digestible albuminoids in the ration to the minimum requirement of 1½ lb. per day for a 9-cwt. bullock. In the other case the supplement of cake is the ration commonly used by Norfolk graziers.

The actual rations at the starting of the experiment were as follows :—

Lot I.	Lot II.
100 lb. swedes.	100 lb. swedes.
12 lb. barley straw (chaffed).	12 lb. barley straw (chaffed).
4 lb. { 1 pt. P.K. meal.	2 lb. linseed cake.
4 lb. { 1 pt. soya bean cake.	2 lb. cotton cake.
4 lb. { 1 pt. rice meal.	

LOT I.—The straw and roots have remained constant. Concentrated food changed as follows:—

January 22. 1 lb. of treacle per head per day was added.

LOT II.—The straw and roots have remained constant. Concentrated food changed as follows:—

January 7. An increase of 2 lb. per head per day of the mixture of equal parts of linseed and Egyptian cotton cakes.

February 4. A further 1 lb. per head per day of this mixture was added.

Lot I are now getting 5 lb. of concentrated food, and Lot II are getting 7 lb.

The bullocks will be followed to the slaughterhouse if possible, and their carcases, weights and condition noted. Comparisons between the two lots will be made on an economic basis, *i.e.*, on the basis of the cost of producing 1 cwt. of dressed carcase.

The muck from the two lots of cattle is to be applied to two separate areas of land in order to follow out the effect of the larger cake ration on the value of the manure produced.

ELECTRIC POWER IN AGRICULTURE.

During the last year the Research Committee have considered reports submitted to them by Mr. Dampier Whetham, Captain Owen and Mr. Borlase Matthews regarding the possibilities of the application of electric power to farming operations. Mr. Dampier Whetham, on behalf of the Committee, has gone very carefully into this matter, and the results of his investigations are contained in an article which appears in this number of the Society's *Journal* (pp. 246–270).

CROP-DRYING DEMONSTRATION.

The Research Committee have made a grant to enable the authorities of the Institute of Agricultural Engineering, of Oxford, to demonstrate in the Society's Showyard at Chester next July a new crop-drying process which, it is claimed, will enable harvest operations to proceed irrespective of the weather conditions.

MEDALS FOR ORIGINAL RESEARCH.

In 1923 the Research Committee decided to renew the offer of a Gold Medal for the best essay embodying original research work. No award was made for that year, but as the result of the competitions for 1924, entries for which closed last Michaelmas, two medals have been awarded, one to Mr. H. J. Vaughan for an essay entitled "Comparisons of the Economics of Production in Grass and Arable Farms," and the other to Mr. W. L.

Davies for a monograph on "The Proteins of Green Fodder Crops." Mr. Vaughan's essay appears in this issue of the Society's *Journal* (pp. 205–246). The paper by Mr. Davies will be published in the *Journal of Agricultural Science*.

SUMMARY.

This Report shows that the object of the Research Committee has been to spend the Society's grant as far as possible to enable trained scientific agriculturists to carry out experiments on properly organised lines. Several experiments have cost far more than the money expended by the Committee, as other people have been interested in the work of the Committee and have made liberal contributions of money, land, buildings and personal help.

NATIONAL AGRICULTURAL EXAMINATION BOARD.

I.—REPORT ON THE RESULTS OF THE TWENTY-FIFTH EXAMINATION FOR THE NATIONAL DIPLOMA IN AGRICULTURE.

HELD AT LEEDS, APRIL 2 TO 9, 1924.

1. The Twenty-fifth Examination for the NATIONAL DIPLOMA IN AGRICULTURE was, by the courtesy of the authorities, held at the University of Leeds, from the 2nd to the 9th April last.

2. The subjects of Examination were Practical Agriculture (two papers), Farm Machinery and Implements, Land Surveying and Farm Buildings, Agricultural Chemistry, Agricultural Botany, Agricultural Book-keeping, Agricultural Zoology, and Veterinary Science. The whole nine papers could be taken at one time, or a group of any three, four or five in one year and the remaining group within the next two years. Candidates taking the whole Examination in one year who failed in not more than three subjects, and candidates taking a second group who failed in not more than two subjects, were allowed to appear again for those subjects only next year. Candidates failing in one or two subjects of a first group of not less than four, or in a single subject of a group of three, were permitted to take those subjects again in conjunction with the second group.

All candidates, before sitting for the Practical Agriculture and Farm Machinery and Implements papers, had to produce evidence of possessing a practical knowledge of Agriculture obtained by residence on a farm for a period or periods covering a complete year of farming operations.

3. One hundred and fifty-five candidates presented themselves, as compared with 204 last year. Sixteen candidates took the whole Examination, 77 who had previously passed in certain subjects appeared for the remaining portion, and the other 62 candidates came up for a first group of subjects.

4. As the result of the Examination, the following 53 candidates were successful in obtaining the Diploma, the first four *with Honours*. The names of the other Diploma-winners are in alphabetical order :—

Diploma with Honours.

1st. Richard Wallace Thompson, Harper Adams Agricultural College, Newport, Salop.
2nd. Oscar William Henry Farrar, Harris Institute, Preston.
3rd. Abram Broadfoot, Glasgow University and West of Scotland Agricultural College.
4th. Austen Stansfield Barker, University of Leeds.

Diploma.

David Thain Adam, North of Scotland College of Agriculture, Aberdeen.
Donald Claude Bower, Seale Hayne Agricultural College, Newton Abbot, Devon.
Hugh Calderwood, West of Scotland Agricultural College, Glasgow.
Ronald Henry Challand, Midland Agricultural College, Sutton Bonington, Loughborough.
Roger Clough, Seale Hayne Agricultural College.
Gordon Cowan, West of Scotland Agricultural College.
James Troup Dallas, University of Leeds.
George Dunlop Davidson, Glasgow University.
John Evans, University College of Wales, Aberystwyth.
Elizabeth Helen Margaret Farries, West of Scotland Agricultural College.
Kevin Columba Aloysius FitzGerald, Seale Hayne Agricultural College.
Leonard Walbanke Furness, Midland Agricultural College.
Alan Vernon Gibberd, University College, Reading.
John Gillies, West of Scotland Agricultural College.
Claude Lionel Godson, South Eastern Agricultural College, Wye, Kent.
David W. Henderson, West of Scotland Agricultural College.
Robert Gilchrist Houston, West of Scotland Agricultural College.
Harry Candler Hunt, Seale Hayne Agricultural College.
John Jarvie, West of Scotland Agricultural College.
Robert Johns, University College of Wales, Aberystwyth.
Robert Kinloch, East of Scotland College of Agriculture, Edinburgh.
Clement Whitworth Linley, University of Leeds.
Robert Hamilton Lohoar, West of Scotland Agricultural College.
James Lymburn, West of Scotland Agricultural College.
Robert Gordon Macfarlane, West of Scotland Agricultural College.
Alexander Stewart McKinnon, West of Scotland Agricultural College.

Gavin MacNeilage, West of Scotland Agricultural College.
Archibald McVicar, West of Scotland Agricultural College.
Thomas Maguire, Royal College of Science, Dublin.
William Ewart José Milton, University College of Wales.
William Beveridge Morris, Edinburgh University and East of Scotland College of Agriculture.
John Cochran Muir, Glasgow University and West of Scotland Agricultural College.
William Alexander Donald Murray, Seale Hayne Agricultural College.
Cedric Owen Oates, Seale Hayne Agricultural College.
Clifford Dent Oxley, Seale Hayne Agricultural College.
John Mosley Peck, Midland Agricultural College.
William Allan Porter, West of Scotland Agricultural College.
Francis Andrew Robb, Glasgow University.
Thomas Harvey Rose, Armstrong College, Newcastle-upon-Tyne.
Richard Routledge, University of Leeds.
Arthur Leslie Stickland, University College, Reading.
Stanley Bowser Summers, West of Scotland Agricultural College.
William Edward Watson, Harper Adams Agricultural College.
Frank Edward Weaver, University of Leeds.
Charles Robert Matthew Webb, Midland Agricultural College.
Frederick Charles White, University College, Reading.
Ernest Augustus George Wiggins, Midland Agricultural College.
George Wallace Wilkinson, Midland Agricultural College.
Cecil Samuel Gill Worthington, University of Leeds.

5. Nine of the Candidates appearing for the whole examination failed in not more than three subjects, and fourteen of those taking a second group of subjects failed in not more than two. These will be permitted next year to take again the papers in which they failed; if then successful in passing, they will be awarded the National Diploma.

6. Of the 62 candidates appearing for a first group of subjects, the following 26 succeeded in passing, and will therefore be permitted, subject to the Regulations, to take the second group in 1925 or 1926:—

John H. Anderson, University of Leeds.
James A. Craig, West of Scotland Agricultural College.
William H. Forbes, Glasgow University.
Gerald E. Furse, Seale Hayne Agricultural College.
Harold S. Haigh, University of Leeds.
Bernard J. Haimes, Seale Hayne Agricultural College.
Harry O. Hirst, University of Leeds.
Donald Horner, Seale Hayne Agricultural College.
John E. Hosking, Seale Hayne Agricultural College.
Harry S. Hutton, Glasgow University & West of Scotland Agricultural College.
John G. Inglis, West of Scotland Agricultural College.
Reginald A. Jeffery, Midland Agricultural College.
Dorothy Kenyon, University College, Aberystwyth.
David I. Laird, West of Scotland Agricultural College.
Leonard T. Lowe, School of Agriculture, Reaseheath, Nantwich.
Hugh McCrae, Glasgow University.

Alexander McGibbon, Glasgow University & West of Scotland Agricultural College.
John M. Main, Glasgow University & West of Scotland Agricultural College.
Sam M. Makings, Midland Agricultural College.
James Morrison, Aberdeen University.
Robert S. Reid, West of Scotland Agricultural College.
David Robertson, Aberdeen University.
Tom G. Scoular, West of Scotland Agricultural College.
Walter Weir, Glasgow University & West of Scotland Agricultural College.
Allen H. Wilson, Midland Agricultural College.
Herbert Wootton, University of Leeds.

7. Twenty-six of the unsuccessful candidates sitting for a first group failed in one or two subjects, which, in accordance with the Regulations, they will be allowed to take again in conjunction with the second group.

8. The Reports of the Examiners in the different subjects are appended:—

PRACTICAL AGRICULTURE. (First Paper, 300 Marks. Second Paper, 300 Marks.) Prof. Wm. Somerville, M.A., D.Sc., Wm. Bruce, M.A., B.Sc., and G. H. Garrad, N.D.A.

We found the candidates up to the average standard, but in most cases their knowledge was rather local. We would recommend that more attention might be given to the different systems of farming practised throughout the country. It was interesting to note that every candidate, without exception, included Wild White Clover in his Permanent Grass Seeds mixture. Most of the candidates avoided a question relating to the comparison of breeds of farm live stock, although, on the other hand, nearly all of them answered well a question relating to sheep breeding.

FARM MACHINERY AND IMPLEMENTS. (200 Marks.) Prof. R. Stanfield, M.Inst.C.E.

The knowledge exhibited by the majority of the candidates indicated careful and systematic preparation; the answers to questions bearing on the use, working, and principle of action of agricultural implements being especially good. At the same time, it was evident that many of the candidates had had no actual personal experience of farm machinery other than implements, their knowledge having been mainly acquired from lectures and text-books, and it is essential that agricultural colleges should take this matter up more seriously in the future. For example, mere theoretical knowledge regarding the principle of action of an engine is of very little value unless it is combined with a certain amount of actual practical working experience.

However, on the whole, the character of the work done by the candidates shows a distinct improvement, but more attention should be given to the practical side of the subject.

LAND SURVEYING AND FARM BUILDINGS. (100 Marks.) R. Cobb, F.S.I.

The low percentage of marks obtained in this subject is probably due to the fact that candidates found the paper a bit too long.

The answers to the Surveying and Levelling questions were distinctly good, but those relating to drainage were not up to standard, partly due, I think, to the candidates not taking sufficient care in reading the question, as the standard of the *vivâ voce* examination in this subject was a good deal above that of the written one.

With regard to Farm Buildings, the candidates appeared to have but little more than elementary knowledge, and even that was confined to information obtained from books.

AGRICULTURAL CHEMISTRY. (300 Marks.) Dr. J. Augustus Voelcker, M.A., F.I.C., and H. J. Page, B.Sc.

As a whole, the examination in Agricultural Chemistry was of a very satisfactory character. Only ten failures occurred out of the total number (82) examined, and 53 of the candidates gained two-thirds marks or over. The written papers reached generally a high standard, occasionally exhibiting special knowledge of recent scientific work.

The *vivâ voce* examination was, as a whole, not so satisfactory and brought out in several cases the absence of a good grounding in General Chemistry. This was shown with thirteen candidates in particular.

As regards individual questions, those calling for remark are Nos. 6, 7 and 9. No. 6 (manurial requirements of crops), though by no means a difficult question, was very inadequately treated; No. 7 (unexhausted manure values) was the worst answered of the whole set, though the subject is one of prominent nature at the present time; while No. 9 (offals of wheat) was rarely attempted, and, when taken, was incorrectly replied to.

AGRICULTURAL BOTANY. (300 Marks.) Prof. John Percival, Sc.D.

Taken as a whole, the work of the candidates was satisfactory, the majority showing evidence of having received a careful training in this subject. There is still too much reliance upon book knowledge; more time should be devoted to practical work, and the accurate use of botanical terms. Few candidates gave clear botanical descriptions of the common weeds in Question 7, their accounts being written in vague popular language. In Question 2, the connection of the plastids and starch grains was generally ignored, and tillering of cereals was often erroneously described as the production of "adventitious" buds and shoots.

Greater attention should be paid to the diagnostic botanical characters of farm plants, especially the grasses, clovers and common weeds and their seeds, and familiarity with the botanical names of these should be enforced. Considerable confusion results when candidates from different parts of the country use the same popular name for different species of plants.

AGRICULTURAL BOOK-KEEPING. (200 Marks.) James Wyllie, B.Sc., N.D.A.(Hons.).

The average standard of merit in this subject was not high. Many candidates showed weakness in the application of book-keeping methods to actual farming practice. Not one candidate knew how to deal with deposit receipts in book-keeping.

Many of the papers were slovenly done, and more attention should be given to neatness and accuracy in working.

AGRICULTURAL ZOOLOGY. (200 Marks.) John Rennie, D.Sc.

The majority of the candidates were fairly well prepared as regards knowledge of the appearance, habits and life-histories of the more important field and animal pests, but they showed distinct weakness in dealing with problems of practical treatment and control. It appears that in certain cases opportunities for field study are not included in the candidates' curricula. The knowledge of systematic entomology exhibited by most candidates was poor, and there is clear evidence that the instruction imparted under this head in too many cases is of a superficial character.

VETERINARY SCIENCE. (200 Marks.) Prof. Sir John McFadyean, M.B., B.Sc., C.M.

The knowledge and ability of the candidates were scarcely up to the average of recent years. Failure in a large proportion of the cases was due to ignorance of the elementary chemistry of food materials and their digestion.

9. The thanks of the Board are again due to the authorities of the University of Leeds, for their liberality and courtesy in placing the Great Hall and other rooms of the University at the Board's disposal for the Examination; and to the Examiners, for the care and attention they bestowed upon the written answers to the papers set, and upon the *vivâ voce* examination.

ERNEST MATHEWS,
Chairman.

16 Bedford Square, London, W.C.1.
April, 1924.

II.—REPORT ON THE RESULTS OF THE TWENTY-NINTH EXAMINATION FOR THE NATIONAL DIPLOMA IN DAIRYING, 1924

1. The Twenty-ninth Annual Examination for the National Diploma in the Science and Practice of Dairying was, by the courtesy of the Authorities, held for English candidates at the

University College and British Dairy Institute, Reading, from September 5 to 13; and for Scottish candidates at the Dairy School for Scotland, Kilmarnock, from September 19 to 27.

2. Seventy-one candidates presented themselves at the English Centre. Of these, sixty-seven took the whole examination, while the other four, having failed last year in the theoretical portion of the examination, were permitted to take that portion again on the present occasion. Three candidates attained the "Honours" standard and thirty-eight others were awarded the Diploma:—

English Centre.

Diploma with Honours.

1. Enid Marguerite Hallum, British Dairy Institute, Reading.
2. Dorothy Crowther-Smith, British Dairy Institute.
3. Hilda Mary Balch, British Dairy Institute.

Diploma.

Olive M. Barnard, British Dairy Institute.
Vena Mary Bebb, University College, Aberystwyth.
Alfred John Carter, East Anglian Institute of Agriculture, Chelmsford.
Norah J. Clark, British Dairy Institute.
Norman Dennis Clarke, Midland Agricultural and Dairy College, Sutton Bonington.
Norman John S. Clay, British Dairy Institute.
Richard Lionel Coates, British Dairy Institute.
H. Gordon Cook, British Dairy Institute.
Betty Hamilton Cox, British Dairy Institute.
Esther Ann Evans, University College, Aberystwyth.
Margerie Evans, Midland Agricultural and Dairy College.
Barbara Maud Alice Fischer, British Dairy Institute.
Mabel Staveley Fowler, Lancs. C.C. Farm, Hutton, Preston.
Edith Fraser, Midland Agricultural and Dairy College.
Charles Roy Greenwood, Harper Adams Agricultural College, and British Dairy Institute.
Margaret Helen Hall, Midland Agricultural and Dairy College.
Bernard Hugh Hunt, East Anglian Institute of Agriculture.
Walter G. Jones, British Dairy Institute.
George Winslow Lock, Midland Agricultural and Dairy College.
Ethel Lunt, Lancs. C.C. Farm, Hutton.
Eleanor Florence McIntosh, British Dairy Institute.
Marion Ada Maxwell, British Dairy Institute.
Doris Elizabeth Naish, Midland Agricultural and Dairy College.
George Alfred Martin Reed, East Anglian Institute of Agriculture.
Janet Robison Ledingham Rennie, British Dairy Institute.
Margaret Forbes Robinson, British Dairy Institute.
William Ross, British Dairy Institute.
Robert Melville Stedman Routledge, Leeds University and Midland Agricultural and Dairy College.
Gladys Mary Rowling, British Dairy Institute.
Mary Arden Shakespeare, British Dairy Institute.
Phyllis Stewart, Lancs. C.C. Farm, Hutton.
Arthur Leslie Stickland, British Dairy Institute.
Averil Stirling, Studley Agricultural College, Warwickshire.

Marjorie Stitch, Lancs. C.C. Farm, Hutton.
Hilda Mary Turner, Midland Agricultural and Dairy College.
Mary Witting, Lancs. C.C. Farm, Hutton.
Gladys Margaret Woods, British Dairy Institute.
Cecil S. G. Worthington, Leeds University and Midland College.

3. Sixty candidates were examined at the Scottish Centre. Of these, fifty-six took the whole examination and the other four, who had previously passed in the practical part, were permitted to appear for the remaining portion. Four candidates reached the "Honours" standard, and twenty-one others were awarded the Diploma:—

Scottish Centre.

Diploma with Honours.

1. Elizabeth H. M. Farries, Risk, Castle Douglas.
2. Harry C. Hunt, 17 Copse Hill, Wimbledon, Surrey.
3. Janet L. Stewart, Southfield, Kirkmuirhill, Lanarkshire.
4. Alexander S. McKinnon, Tigh-na-Lynn, Lamlash.

Diploma.

James E. Bruce, 17 Braemar Street, Langside, Glasgow.
Christina M. Campbell, Craigroyston, Dalmally, Argyllshire.
George D. Davidson, Hayfield, Kirkpatrick Fleming, by Lockerbie.
Kevin C. A. FitzGerald, Seale Hayne Agricultural College, Newton Abbot.
John Gillies, Levenvale, Half-way Tree, Jamaica, B.W.I.
David W. W. Henderson, "Blairmont," Carluke.
Joseph Irving, Greenwrae, Gretna, Dumfriesshire.
John Jarvie, "Ardenlea," Cumbernauld.
Robert Russell Kay, Beachmount, Stranraer.
Vida H. C. A. Lamb, 70 Mount Annan Drive, Cathcart.
Joseph McClemont, 8 Barra Street, Maryhill, Glasgow.
Matthew H. W. Miller, "Raguel," Paisley.
John Cochran Muir, 9 Gateside Place, Kilbarchan, Renfrewshire.
Helen McLaren Rae, 48 Balshagray Avenue, Partick, Glasgow.
M. Y. Selim, Agricultural College, Giza, Egypt.
Thomas R. Shaxson, "Little Mariners," Crickham Hill, Edenbridge, Kent.
Agnes B. Thornley, 52 Buchanan Drive, Cambuslang.
Robert Torrance, Junr., "Glen Rosa," Stewarton Drive, Cambuslang.
Charles H. Westwater, Graham Place, Kinross.
Esther Elaine Wood, New Malden, Surrey.
Archibald D. Wyllie, 11 Crompton Avenue, Cathcart, Glasgow.

All the candidates at the Scottish Centre had been students at the Kilmarnock Dairy School.

4. The Examiners at both Centres were: Richard H. Evans, B.Sc. (General Dairying, Practical Butter-making and Capacity for imparting Instruction); William Lawson, M.B.E., N.D.A. (Hons.), C.D.A. (Glas.), N.D.D. (Cheese-making); and Dr. J. Augustus Voelcker, M.A., F.I.C. (Chemistry and Bacteriology).

5. Mr. Evans, who was acting for the first time as one of the

Examiners for the National Diploma in Dairying, reports as follows: I cannot compare the 1924 results with those of previous years. I am, however, in a position to say that the class of student entering for the Diploma has greatly improved during the last fifteen years, and that the Examination since its institution has been the means of raising the standard of work in the Practice and Science of Dairying and Dairy-farming in our schools and colleges.

"The written answers at both centres were, on the whole, satisfactory. A certain amount of carelessness in reading and grasping the purport of some of the questions was evinced by a number of the Kilmarnock candidates. When asked 'to discuss the relative importance of the cream supply and of the practice of manufacture in the production of high quality butter,' about 90 per cent. of the candidates at this centre wrote detailed answers on the management of cream and the actual process of butter-making, thus evading the main point of the question.

"In the oral examination, while most of the candidates at the English Centre were able to improve upon the written answers, those taking the Examination at the Scottish Centre were disappointing, and it was evident that they had not as good a grasp of the subject as those examined at Reading. The average marks obtained in the Oral examination were 58 per cent. at Kilmarnock as against 68 per cent. at Reading.

"In the actual practice of Butter-making, the Kilmarnock candidates proved themselves a very even class, and hardly any of them showed the least hesitation in proceeding from one stage to another, with the result that the average time taken was only 2 hours. A number of the Reading candidates, however, appeared to be over-cautious at the critical stages, and the average time taken at this centre amounted to 2 hours 20 minutes.

"The arrangements for the supply of cream, and for the carrying out of the Examination, for both Examiners and Students, were excellent."

6. Mr. Lawson reports that: "The Cheese-making paper at Reading was, on the whole, well done. Candidates gave clear and detailed answers to questions relating to the making of the different kinds of cheese, but questions which required reasoned answers, and those on the commercial side of the subject, were less well done. Candidates were, however, often able to improve considerably on their paper in *vivâ voce* examination.

"The practical work was good, and it was evident that the candidates had had good experience in the making of the different kinds of cheese.

"At Kilmarnock the answers in the written work were very lengthy and much of the matter had little connection with the questions asked. There was a tendency for candidates to write a treatise on each subject, going deeply into the scientific side of the question but neglecting simple yet important points. Such questions as the quantity of starter to be used in Cheddar cheese-making brought long answers of a scientific kind, but only a very few made any mention of the temperature of the evening's milk in the morning or of weather conditions. In *vivâ voce* examination the candidates were disappointing. It was evident that they had received a mass of information which they understood imperfectly, and they were unable to give reasons for their answers. The practical work was well done, the candidates being particularly smart and tidy in their work. Failures, where they did occur, were due to not recognising at an early enough stage the variation from the normal of the milk they were dealing with.

"The arrangements for practical work at both centres were all that could be desired."

7. "As regards the examination in Chemistry and Bacteriology at Reading," Dr. Voelcker reports that "the results may be considered quite satisfactory, seeing that one-half the number of candidates succeeded in obtaining two-thirds or more of the possible marks. The failures in the subject were twenty in number. Special knowledge was shown by five candidates. The knowledge of elementary principles of Bacteriology was distinctly better than that of the underlying principles of Chemistry, and there is reason for repeating the general warning that this side of the examination is not sufficiently borne in mind. Coming to individual questions—such as formed part of Dairy practice or were answerable from text-book knowledge, were, almost without exception, well and fully replied to. It was also satisfactory to find the first question (on multiplication of Bacteria, &c.) well illustrated by drawings. Further, question 2 (importance of mineral matter) was in several instances supplemented by records of recent experimental work. Another matter well handled was that relating to the 'bacteriological purity' of milk (question 6) and present-day 'standards.' The one failure in this respect was to indicate the temperature and time of duration of heating.

"Where the candidates, almost without exception, failed, was in answering questions such as 4 (Glucosides) and 8 (Cane and Beet Molasses), the information on which was not readily accessible in text-books, but which, because of their practical importance, should have formed part of efficient class-teaching."

Dr. Voelcker states that: "The results attained at Kilmarnock were very disappointing, and compared very badly with the corresponding ones at Reading, where a generally high standard had been reached. Nor did the *vivâ voce* examination reveal that there was mere failure to express adequately in writing what was required. On the contrary, but little improvement on the paper work was manifested, and in many cases the want of groundwork in elementary chemistry was painfully apparent. Of the sixty candidates no less than thirty-two, or more than one-half, failed in this subject alone, several others only just succeeded in qualifying, and seven only obtained three-quarter marks or more, ten others reaching the two-thirds standard. Among the failures were all four who came up for paper work only, and it is clear that little or nothing had been done by them in the way of remedying last year's deficiencies. Of individual questions in the paper, those best answered were the ones bearing on actual dairy practice [question 6 (states in which milk constituents exist) and question 8 (working of acidimeter test)], and the least well replied to were those dealing with more strictly chemical considerations [question 1 (oxidation and reduction), question 3 (conversion of starch into sugar), question 7 (different classes of oils)]. As a whole, the bacteriological points involved in the questions set, as also in the *vivâ voce* examination, were satisfactorily dealt with. A not infrequent misunderstanding of two questions [question 2 (the essential constituents of plants) and question 6 (state in which constituents of milk occur)] conduced to the general lowering of marks, but for these misunderstandings no real justification existed."

ERNEST MATHEWS, *Chairman.*
T. B. TURNER, *Secretary.*

16 Bedford Square, London, W.C.
October, 1924.

ANNUAL REPORT FOR 1924 OF THE PRINCIPAL OF THE ROYAL VETERINARY COLLEGE.

ANTHRAX.

THE following table shows the number of confirmed outbreaks of anthrax in each of the past eleven years:

Year.	Outbreaks.	Animals attacked.
1914	722	796
1915	575	641
1916	571	687
1917	421	480
1918	245	282
1919	234	314
1920	459	547
1921	505	649
1922	515	603
1923	721	841
1924	713	834

It has been necessary to give the annual figures as far back as 1914 in order to explain the remarkable variation in the number of confirmed outbreaks during the period 1917–1920. Reliable information regarding the incidence of the disease in Great Britain has only been obtainable since January 1, 1910, when the Anthrax Order which then came into force placed on the officers of the Ministry of Agriculture the duty of determining by microscopic examination whether any reported case of anthrax was actually of that nature or not. The experience of the immediately following years indicated that what may be called the normal incidence of the disease was about six or seven hundred outbreaks per annum, and, as will be seen from the above table, the number in 1914 was 722. In many previous reports before that year it had been pointed out that there was strong evidence to support the view that the majority of the outbreaks in this country were due to the introduction from abroad of feeding stuffs or manures containing the spores of anthrax bacilli; and it was foreseen that the restriction on imports which began early in the recent war would, if continued, provide a test of the accuracy of this theory. In point of fact the figures given in the table are perfectly consistent with the theory, and are not explainable by any other view that has yet been put forward.

As the amount both of feeding stuffs and of bone manure imported from certain foreign countries was much reduced during the war, it is not possible to say with certainty what proportion of the reduction in the number of outbreaks which reached its maximum in 1919 should be assigned to the one or the other, but reasons were given in the last annual report for believing that imported feeding stuffs must still be regarded as mainly responsible for the continued occurrence of the disease. It may be noted, however, that the danger attaching to foreign bones and bone meal is undeniable, and emphasis has been given to this risk by an action in a court of law in Scotland during the past year, in which the Sheriff found that two horses became infected with anthrax through fine dust carried by the wind from an adjoining field on which bone meal was being sown. An important point in the decision was that, although the seller of the bone meal had not been in any sense negligent at common law, he was liable because the sale was in breach of the implied condition that the bone meal was of merchantable quality. A decision to the same effect had previously been given in English Courts in two cases in which animals were proved to have contracted anthrax through the consumption of infected feeding stuffs. These precedents are of less value from the purchaser's point of view than may at first sight appear because of the difficulty, often insuperable, of proving, even by circumstantial evidence, that the incriminated material was the actual source of the infection.

The experience of New Zealand illustrates not only the danger of infection from imported bones, but also the means by which it may be avoided. In that country an enquiry regarding the cause of outbreaks pointed to bone manure imported from India, and an order was issued prohibiting further importation except in the case of bones that had previously been sterilised by steam in the exporting country, under supervision of New Zealand officers. The result has been that only one outbreak of anthrax has occurred during the last ten years.

GLANDERS.

The following table shows the number of outbreaks and the number of horses attacked in each of the last nine years:

Year.	Outbreaks.	Animals attacked.
1916	47	117
1917	24	62
1918	34	98
1919	25	61
1920	15	22
1921	11	42
1922	4	4
1923	8	13
1924	2	3

In several preceding annual reports the hope was held out that the next one might have to record the last case of this disease, but the fact that three cases were reported in 1924, and two of them as recently as the first week in December, forbids the conclusion that the country is now quite free from the disease.

SHEEP SCAB.

The reported outbreaks of this disease in each of the last eight years were as follows:

Year.	Outbreaks.
1917	543
1918	351
1919	438
1920	479
1921	757
1922	683
1923	646
1924	534

It is gratifying to find that there has been a decline in the number of outbreaks during the past year, although it does not foreshadow the early extinction of the disease. On various occasions during recent years the view that its eradication is practicable has been pressed upon the Ministry of Agriculture, and the order which came into force on June 30, 1923, was the outcome of such representation. Its principal provisions were to increase the maximum penalty to which owners are liable if they fail to keep their sheep free from the disease, and to lay on them, in any case in which the disease is found to exist, the burden of proving that the order has been complied with. It ought to be noted, however, that the full effect of the latter provision cannot yet be estimated, as it did not come into force until July 1 last. If after a full year's operation of the order it becomes apparent that it is not having the expected effect it will be necessary to press for fresh legislation imposing a very substantial minimum penalty on owners who fail to free their flocks from the disease.

SWINE FEVER.

The number of confirmed outbreaks of this disease in each of the last nine years was as follows :

Year.	Outbreaks.
1916	4,331
1917	2,104
1918	1,407
1919	2,305
1920	1,816
1921	1,262
1922	1,390
1923	1,963
1924	1,432

The first year in the above table was the last in which swine fever was dealt with by stamping-out measures, under which there was compulsory slaughter not only of visibly diseased animals, but also of those that were considered to have been exposed to infection, compensation being allowed in the latter case. In September of that year a new policy was introduced, the slaughter of in-contact animals being abandoned, but restriction on movement from infected premises maintained, and encouragement given to the use of serum in order to bring outbreaks to an end. This had the effect of throwing on the owners the loss inflicted by the disease, and therefore the chief responsibility for getting rid of it. As the table shows, the new policy appears to have had a marked effect in reducing the number of outbreaks, although the sudden rises in 1919 and 1923 were very disappointing and difficult to explain. Fortunately the outbreaks during the last year have declined, but the reduction is not of a kind to hold out any prospect that the measures now in force will do more than hold the disease in check.

PARASITIC MANGE IN HORSES.

The incidence of the disease during the last six years is shown in the following table:

Year.	Outbreaks.	Animals attacked.
1919	5,016	9,861
1920	3,564	3,812
1921	2,055	3,108
1922	1,035	1,454
1923	789	1,119
1924	657	926

In 1913 the number of reported outbreaks was 2,382, and the great increase which occurred in 1918 was undoubtedly due to diminished vigilance of the local Authorities and the lower condition of horses during the stress of the war. It is very satisfactory to note that the decline in the number of outbreaks which began in 1920 has been continued during the past year. As the disease entails only temporary disablement, it has again become of little importance from an economic point of view.

SWINE ERYSIPELAS.

During the past year a number of very serious outbreaks of swine erysipelas were reported, chiefly from the eastern counties and in the months of July to September. The more important facts regarding the disease were set forth in the last annual report, and here it need only be recalled that in France, Germany, and other countries in which it is much more prevalent than in any part of Great Britain, a method of vaccination which appears generally to have yielded excellent results has been extensively practised during the last 20 years. The same method has proved equally effectual in preventing the disease on some English farms where it had previously caused serious loss. Unfortunately, in its worst form the disease is rapidly fatal, and where large numbers of pigs are kept many may be attacked and die before the preventive treatment can be applied. On farms where the disease has shown a tendency to recur annually it is therefore advisable to have the whole of the young animals vaccinated before they reach what appears to be the most susceptible age, viz., from four to nine months.

FATTY LIVER AS A CAUSE OF DEATH IN LAMBING EWES.

During the spring of 1924 reports reached the Research Institute from different parts of the country regarding losses among lambing ewes from what was regarded as a mysterious disease. When the circumstances were ascertained, however, it was surmised that the disease was one that is by no means rare in England, and this was verified by a visit to one of the farms on which numerous deaths had occurred, and by a number of post-mortem examinations.

There are few other diseases in which the symptoms exhibited and the circumstances under which animals are attacked are so characteristic. In all the cases that have come under notice during the last 30 years only pregnant ewes within a few weeks of lambing have been affected, and except in one or two doubtful instances no ewe has been attacked after lambing.

The symptoms are those of rapidly increasing dullness (hanging of the head, drooping of the ears, complete loss of appetite), and in some cases disturbance of vision or actual blindness. No ewe exhibiting these symptoms has been known to recover. In all the cases that have come under observation the ewes have been in exceptionally high general condition.

The post-mortem examination as a rule shows no evidence of disease except in the liver, which is always the seat of very advanced fatty infiltration. Indeed, in many cases microscopic examination shows that nearly every cell of the organ has been infiltrated with fat to a degree that must have rendered it practically incapable of discharging any of its functions.

The disease has only been observed in the best breeds, in which there is the greatest tendency to accumulate fat, and its occurrence among ewes must be ascribed to injudicious overfeeding during the latter months of pregnancy. In all pregnant animals at that time a slight degree of fatty infiltration of the liver is apt to occur, but it is only excessive degrees of the condition that lead to serious consequences.

It has already been mentioned that the illness is not observed in ewes that have lambed, and that is no doubt attributable to the fact that parturition and lactation immediately impose a considerable drain on the system and thus tend to counteract the tendency to infiltration of the liver with fat.

It is very desirable that flock owners should realise that overfeeding of pregnant ewes up to the time of parturition is a dangerous procedure in the better breeds. When the disease shows itself in any flock the food of the ewes should be cut down to a bare subsistence diet until they have lambed.

IS CHICKWEED (*Stellaria media*) POISONOUS?

The following experiment was carried out because of a communication received from a member of the Society to the effect that on various occasions chickweed had caused the death of lambs.

A quantity of fresh chickweed was received on May 30, and on June 1 a cross-bred young adult sheep, from which ordinary food had been withheld since the previous day, was given 2 lb. of it. About half of this ration was eaten during the course of the day, and on the following morning, June 2, the remainder had been consumed. A further 2 lb. was then given, and the whole of that had been eaten on the following day. The remainder of the chickweed, amounting to 1½ lb., was then given, and it had all been consumed on June 4.

Within four days the sheep had thus consumed 5½ lb. of the weed, and this appeared to have no injurious effect whatever on the animal, either at the time or subsequently.

The experiment therefore afforded no support to the view that chickweed should be regarded as poisonous. It may be added that with one exception the textbooks which have been consulted do not include *Stellaria media* among the poisonous plants. In the exceptional case a reference is given to an article by the late Dr. William Carruthers (*Journal of the Royal Agricultural Society*, Vol. 64, 1903, page 308), but in that the author expressly stated that the weed in question is not poisonous, but that it had " the credit of causing disorder to the digestive system when eaten in great quantity by young lambs."

In conclusion it ought to be stated that sheep will not readily eat chickweed if other food is available.

FOOT-AND-MOUTH DISEASE.

The following Table shows the number of outbreaks of foot-and-mouth disease during the last six years.

TABLE I.

Year	Outbreaks	Animals Slaughtered as Diseased or Suspected
1919	75	3,463
1920	93	11,665
1921	44	3,085
1922	1,140	55,599
1923	1,854	125,098
1924	1,515	101,917

In 1923 nearly the whole of the outbreaks occurred in the last two months and no fewer than 1,147 of them were in December. In the last week of the year the number of confirmed outbreaks was 319, and these were distributed over 25 counties in England, Scotland, and Wales.

It was foreseen that this serious state of affairs at the end of 1923 meant a legacy of trouble for the new year, and in fact the disease continued to be widely prevalent during the first three months of 1924. For that period the following Table shows the number of outbreaks in the central group of counties which were the worst affected at the end of the previous year :

TABLE II.

Weeks	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23–46 weeks
Chester	160	110	63	20	16	19	4	6	4	2	1	..	1	2	..	..	..	..	..	..	1	No outbreaks reported in this week.	2
Salop	19	16	9	4	6	..	3	1	..	..	2	1	..	1	..	..	1	2	..	..	..		..
Lancaster . . .	8	8	5	5	2	13	12	7	18	2	5	2	1	5	3	1	..	..	1	1	..		4
Stafford . . .	21	10	4	8	..	5	6	5	7	7	5	8	2	3	..	1	1	..	..	2	..		13
Worcester . . .	3	3	1	2	1	1	3	1	..	1	..	3	1	1	..	1	..	..	..	..	..		2
Derby	3	3	3	1	3	5	1	12	2	5	3	6	6	2	1	..	..	..	..	..	..		16
Warwick . . .	4	..	1	2	3	4	4	3	9	5	..	1	2	2	1	1	1	..	4	..	1		3
Leicester . . .	2	2	1	1	1	1	2	..	..	4	2	1	7	5	2	6	2	2	..	..	..		2
Nottingham . .	..	..	..	..	..	2	11	17	12	6	13	4	3	2	..	..	1	..	..	..	1		38
Northampton . .	2	..	3	..	..	..	1	11	16	9	7	2	1	..	..	..	..	..	..	..	1		17
Denbigh . . .	3	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1		..
Flint	4	7	5	4	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		..

As the Table shows, only five outbreaks occurred in this area during the 21st week (ended May 24), and during the following week no outbreak was confirmed in any part of Great Britain.

In the same period of 21 weeks outbreaks in other counties in England were as follows:

TABLE III

Bedford	12	London	2
Buckingham	8	Middlesex	12
Durham	20	Norfolk	28
Essex	2	Northumberland	40
Gloucester	9	York, E. Riding	8
Hertford	3	„ N. Riding	13
Huntingdon	1	„ W. Riding	27
Isle of Ely	13	Cumberland	10
Kent	7	Wiltshire	14
Lincoln	6	Southampton	1

During the latter half of the year the worst affected counties were the following: Berkshire, 7; Buckingham, 9; Derby, 16; Dorset, 13; Kent, 19; Lincoln, 11; Northampton, 17; Nottingham, 38; Oxford, 44; Wiltshire, 14.

The following Table shows the distribution of the outbreaks in Scotland during the year.

TABLE IV

Weeks	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Aberdeen . .	1	..	..	..	..	..	..	..	..	..	..	No outbreaks	No outbreaks	..	..	..	..	..	..	..
Ayr	..	..	..	..	..	4	..	3	2	2	1			1	..	1	1	2	..	1
Banff . . .	2	3	..	..	..	..	..	..	..	..	..			..	..	1	1	2	..	1
Dumbarton . .	..	..	..	..	..	..	..	..	4	1	..			..	..	..	..	..	..	..
Fife	1	..	..	..	..	..	..	..	..	..	..			..	..	..	..	..	..	..
Forfar . . .	..	1	..	..	..	..	..	..	..	..	..			..	..	..	..	..	..	..
Lanark . . .	2	2	2	1	2	..	1	..	1	1	..			..	..	..	1	..	..	1
Linlithgow . .	..	..	..	..	..	..	..	..	..	..	..			..	..	..	..	..	..	1
Perth . . .	..	..	..	..	..	..	..	..	..	..	..			..	..	..	..	1	..	..
Renfrew . . .	..	..	..	..	..	..	..	..	..	..	..			..	..	..	..	..	..	1

From the end of the 20th week Scotland remained free from the disease.

During the last week of 1924 no outbreak was reported in any part of the country, and only four were confirmed during the preceding four weeks.

Reliable statistics regarding the occurrence of outbreaks of foot-and-mouth disease in this country began with the year 1877, and the past year was the worst since that date with two exceptions, viz., 1923, in which the outbreaks were 1,854, and 1883, when 18,732 outbreaks were reported. After 1883 the disease rapidly declined, and it disappeared entirely in 1886. Subsequently, down to 1918, the outbreaks were as follows:

Period.	Outbreaks.
1886–1891	—
1892–1894	100
1895–1899	—
1900–1902	34
1903–1907	—
1908	3
1909	—
1910–1916	190
1917	—
1918	3

During the last three years the amounts paid in compensation for animals slaughtered in connection with outbreaks have been as follows:—

1922	£803,529
1923	£2,209,781
1924	£1,392,417[1]

If attention were confined to the occurrence of the disease in Great Britain it would be very natural to come to the conclusion that the stamping-out measures enforced during the last six years should be abandoned because they have involved great expense and have failed of their purpose, but a different conclusion may be reached if one takes account of the experience of other European countries in which different methods of dealing with the disease have been employed during the same period.

It has therefore been thought useful to include in this survey figures (obtained from the Ministry of Agriculture) showing the incidence of foot-and-mouth disease in the three continental countries nearest to Great Britain, and in Germany.

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[1] The figures given for this year are approximate only.

TABLE V.

Outbreaks in 1923.

Month	Great Britain	Germany	Holland	Belgium	France
1923					
January	—	437	24	22	119
February	4	423	22	13	197
March	1	770	10	156	213
April	2	515	37	96	66[1]
May	—	703	146	64	930
June	2	1,072	251	27	142
July	11	1,136	476	17	370[1]
August	14	1,992	1,176	110	1,254
September	59	2,532	2,535	371	1,182
October	88	3,176	2,658	398	2,709
November	521	1,844	1,298	395	2,947
December	1,148	1,456	557	491	3,032
Total	1,850	16,256	9,190	2,160	12,361

TABLE VI.

Outbreaks in the first eight months of 1924.

Month	Great Britain	Germany	Holland	Belgium	France
1924					
January	676	1,897	211	436	2,181
February	297	1,278	369	500	1,697
March	191	2,838	2,397	490	1,633
April	83	1,148[1]	4,746	626	936
May	31	1,114	949	1,506	754
June	49	1,224	14,914	1,654	1,012
July	92	1,710	22,581	3,018	1,426
August	48	3,363	20,692	5,116	3,326
Total	1,467	14,372	66,859	13,346	12,965

The complete figures for the last four months of 1924 in the four continental countries are not obtainable, but it is known that their inclusion would make the comparison still more favourable for Great Britain.

It ought to be noted that the figures in the tables denote outbreaks, the number of animals that contracted the disease in the four foreign countries being not known. The average number of animals involved in the outbreaks in Great Britain in 1923 and 1924 was 67, and, assuming that the average number was only 30 in the foreign herds, it will be seen that in Holland probably not less than two million animals became affected with the disease in the first eight months of 1924.

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[1] Figures incomplete.

In endeavouring to estimate the relative cost of what may be called the British and the Continental method of combating the disease, one must remember, (1) that, even neglecting the deaths, the deterioration in value which an attack of foot-and-mouth disease entails in the case of cattle is not less than £3 per head at present prices, and (2) that if the stamping-out method had not been employed in Great Britain the disease would long ago have over-run the whole country, with results similar to those shown in the foreign countries included in Tables V and VI.

In conclusion it ought to be pointed out that to give up the present stamping-out method would mean the abandonment of compensation and throw nearly the entire loss which the disease causes on the farming community. The sums spent in compensation represent a heavy premium paid from national funds to guard against a possible disaster of which the direct consequences would fall almost entirely on agriculture.

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ANNUAL REPORT FOR 1924 OF THE CONSULTING CHEMIST.

There were 355 samples submitted by Members of the Society for analysis, during the twelve months, as against 406 in 1923. In addition, 18 samples of Cider were analysed in connection with the Society's Country Show at Leicester.

The samples comprised a good many Compound Cakes and Meals, while Fertilisers were fewer; a number of Soils were also reported upon.

Prices, generally, of feeding stuffs were high throughout the year, whereas fertilisers were decidedly cheap.

No new material of note has come to the front, but ground phosphates have come more into use, especially the North African ones, and Potash salts have also been more freely used.

A paper read by myself, on the "Liming of Land," before the Farmers' Club in March of this year gave fresh interest to the important matter of lime, and a number of samples of this were sent for examination.

No new form of adulteration has been brought to light, but wheat and other offals have, besides being very dear, been frequently found to be impure or adulterated. One case where Sharps were adulterated with rice-husk formed the basis of prosecution under the Fertilisers and Feeding Stuffs Act, and was met by a heavy fine. This was in East Yorks.

Special reference is made later to a case of *Lathyrus* poisoning, the exact nature of which is still obscure.

The opening of the French Potash Mines in Alsace has provided further facilities for agriculturists to obtain potash salts more freely and also at very moderate cost. A visit to these mines, paid by me in the autumn, showed me the wide extent of these, and the facilities for obtaining both the natural salt—generally known in this country as "Kainit" (though the term has lost its original significance)—and the refined and high quality salts, muriate (chloride) of potash and sulphate of potash. The natural salt as mined contains the equivalent of 14 to 20 per cent. of potash, and consists practically of chloride of potassium and chloride of sodium (common salt). It is mined and brought to the surface, where it is roughly crushed; pieces of clay, slate, etc., are picked out and the salt then finely crushed. It is in nice, dry condition, and is not subject to becoming moist on exposure, as are salts which contain magnesia salts also. By a process of crystallisation—carried out on strictly scientific principles—the common salt can be entirely removed from the potash salt, and the latter obtained as practically pure muriate of potash. By a further process of manufacture it can be converted into sulphate of potash.

The opening of these mines is of great advantage to the agriculturist, as, not only can he get potash salts of good keeping quality, but he is no longer dependent—as was before the case—on the potash salts obtained from German sources—such as exist, e.g., at Stassfurt and elsewhere in Prussia.

A considerable impetus has been given—largely through the promise of Government aid—to the sugar-beet industry, and various samples of sugar-beet have been analysed and found generally to be of excellent quality as regards sugar contents. Seed from stock obtained after many years' selection in Holland has been grown at the Woburn Experimental Farm, and distributed from there to various centres where the crop from it has been grown this season and will in due course be tested as to quality.

In other parts of the Society's chemical work may be mentioned, as leading features, the revival of the issue of *Occasional Notes*, the appearance of the Report of the Departmental Committee on the Fertilisers and Feeding Stuffs Act, and the publication—in the *Journal*—of a summary of the work of the Woburn Experimental Farm from its commencement until the date (October, 1921) of its being given up by the Society.

Occasional Notes, the issue of which ceased in 1920 for a time, were, in my opinion, greatly appreciated by the members of the Society, and formed a useful means of acquainting them with the work—largely, it is true, of the Chemical Department—in the intervals between the issue of the yearly *Journal*. No. 9 was sent out in December, 1924, and contains, inter alia, a digest of the Report of the Departmental Committee on the Amendment of the Fertilisers and Feeding Stuffs Act. This Committee, of which Lord Clinton was the Chairman, and myself a member, held thirteen sittings and heard a considerable amount of evidence from persons acquainted with the working of the Act—the Chairman of the Chemical Committee of the Society being among these. The Committee issued on March 27th, 1924, an unanimous report which has had, it may fairly be claimed, a good reception on all sides—alike among agriculturists and traders. This Society, after carefully considering the Report, expressed its general approval of the proposals, without, of course, committing itself to points of detail; and the like was done by the National Association of Corn and Agricultural Merchants. It was generally felt that the proposals marked a great advance on anything that had previously been put forward, and both bodies urged on the Ministry of Agriculture the desirability of legislating on the lines indicated in the Report.

Lastly, the putting together, in brief summary, of the main work carried on at Woburn during the 38 years of its existence will be found to provide a useful record and reference for farmers and students alike.

Following my usual practice, I proceed now to comment on particular cases which my analytical work for the Society has brought to my notice.

A. FEEDING STUFFS.

1. *Linseed Cake.*

Linseed Cake has been comparatively scarce and high-priced throughout the year. Following a rise at the end of 1923 the price quoted in January and February was £13 5*s*. per ton, this falling in March to £12 and to £11 in May. At the end of July it again rose to £13 7*s*. 6*d*., and to £14 5*s*. in October, experiencing only a slight fall to £13 15*s*. per ton in December. The quality, with few exceptions, was good and up to guarantee.

2. *Cotton Cake.*

The terms "Egyptian" and "Bombay" are applied generally to two different classes of seed, the former ("Egyptian") being that of the seed which gives the long staple cotton which is easily removed from the seed in the process of "ginning." The other ("Bombay") is the seed of the plant that gives short staple cotton and which is closely matted on the seed and is difficult to remove. It must not, however, be supposed by the *buyers* of the cake that these two kinds of seed come solely from the respective countries indicated by the name, inasmuch as seed comes from many other sources, such as "Sudanese," "East African," "Brazilian" &c. The distinction, however, is a convenient one and is generally accepted. Though there is a difference in price, which varies from 10*s.* to £1 a ton, between the two, it is maintained that there is not sufficient justification for this. In some parts of Great Britain, notably in the north of England and in Scotland, cake made from Bombay seed has a much more ready sale, more especially for feeding stock on grass land. How far this preference may be due to the lower price of the Bombay cake is not clear, but, at all events, it would seem desirable to put this question to the test of actual feeding experiment.

Cotton Cake generally underwent less variation in price than Linseed and other cakes. For Egyptian, £7 10*s.* to £8 was quoted up to July, rising in November and December to £8 15*s.* per ton, while prices for Bombay cake were at first £7, then, in August, £8 5*s.*, and, in December, £8 7*s.* per ton.

Samples of both varieties of cake submitted were generally satisfactory.

3. *Decorticated Cotton Cake and Meal.*

These have not been nearly so satisfactory as the common or undecorticated cake. Indeed, it has been the exception to get really good samples, the majority being badly decorticated, and, in the case of the cake, extremely hard. Prices have ranged from £13 2*s.* 6*d.* per ton in the early part of the year to £13 10*s.* in August, and £14 5*s.* per ton in September and on to the close of the year.

The following are two instances of unsatisfactory deliveries :—

	A. Decorticated Cotton Cake	B. Decorticated Cotton Meal
Moisture	8·12	8·76
Oil	7·59	7·47
Albuminoids	34·00	33·43
Carbohydrates	33·49	31·76
Woody Fibre	10·38	12·01
[1] Mineral matter	6·42	6·57
	100·00	100·00
Nitrogen	5·44	5·35
[1] including sand	·16	·26

"A" had been guaranteed to contain 8 per cent. of Oil and 37 per cent. of Albuminoids, and was low in both respects. Moreover it was a dark-coloured and very hard cake, and was badly decorticated. The price was £11 15*s*. per ton delivered.

"B" was guaranteed to have 10 per cent. of oil and 38 per cent of albuminoids, the analysis showing it to be 2½ per cent. deficient in oil and 4½ per cent. deficient in albuminoids. The fibre (12 per cent.), moreover, was very high. The price charged was £14 15*s*. per ton, £13 2*s*. 6*d*. being the then current price for good decorticated Cotton Cake. An allowance of 30*s*. per ton was made.

4. *Ground Nut Cake, Coconut Cake and Palm Nut Meal.*

These do not appear to have been very largely used, but such samples as were sent were found to be generally good.

The prices have been as follows:—

Ground Nut Cake . . .	£12 10*s*. to £14 per ton.
Coconut Cake	£10 to £12 per ton.
Palm Nut Meal (extracted) .	£7 to £8 per ton.

5. *Compound Cakes and Meals.*

A considerable number of these have been examined, and it is only right to say that they have, almost without exception, been found to be good. Indeed, a marked improvement has been noted by me as regards the materials used and the absence of ingredients of valueless, doubtful or objectionable nature.

6. *Cereals, Offals, &c.*

Barley Meal has been somewhat scarce and extremely dear. Starting at £10 7*s*. 6*d*. per ton in January, the price rose to £12 per ton in July and £14 per ton in September, remaining at about £13 10*s*. per ton till the close of the year.

Middlings have ranged in price from £8 to £10 per ton. In one instance, in the sale of Sharps, which was brought to my notice, the presence of finely ground rice husk was detected. This led to prosecution by the County Council concerned and the imposing of a considerable fine.

The material known as "Sussex Ground Oats" would appear to have been in great favour, especially with poultry-keepers, and it is therefore well to draw attention to the fact that this material is frequently adulterated, and is often very different from what it professes to be. Though called "Sussex Ground Oats," this name has now lost all local significance, nor, so far as I can gather, is it any longer associated with any particular mode of manufacture, as one may get "Sussex Ground Oats" prepared in districts far removed from Sussex. The high price (which has ranged from £13 10*s*. to as much as £14 2*s*. 6*d*. per ton) obtainable for this material makes it particularly amenable to admixture with other grain.

Under the name "Oat and Wheat Feed" (which was sold at £10 10*s*. per ton) a sample was sent me which was found to contain no wheat and only a little oats, being practically all barley.

7. *Fish Meal* (*Feeding*).

A sample of this, which was said to be produced locally and to be offered at 12*s*. 6*d*. per cwt., was found to give the following results :—

	Per cent.
Moisture	44·20
Oil	13·93
Albuminoids	35·94
Mineral matter	6·61
Salt	1·40

It was in bad condition and contained far too much oil to be a safe feeding material.

8. *Meat Meal* (*Feeding*).

	Per cent.
Moisture	8·49
Organic matter	53·71
Albuminoids	37·00
Phosphates	31·42
Salt	2·06

A sample of this sent me had been used for feeding pigs of 10 to 12 weeks old. It caused scouring, and four of the young pigs died, the remainder recovering when the food was taken off. I found it to be not Meat Meal, but what would more properly be described as "Meat and Bone Meal." The bone, however, consisted of somewhat large pieces of sharp bone such as would be likely to set up irritation. This meal cost £14 10*s*. per ton and was very dear, Meat meal then costing only £12 5*s*. per ton. The sellers offered to take the delivery back and to repay the farmer for more than half his loss.

9. *Lathyrus Poisoning*

The question of *Lathyrus* poisoning resulting from the feeding of so-called "Indian peas," or "Mutter Peas," has frequently come up. It is known that there are kinds that are poisonous while there are others that are non-poisonous, but it has not been possible, as yet, either chemically or botanically, to distinguish them.

When in India myself in 1890 I looked into this question and have since endeavoured to follow it up. It, however, remains in great uncertainty.

From time to time one hears of outbreaks, following the use of Indian peas, often resulting in death and heavy loss. The most that can be said is that any parcel sold under the name "Indian Peas," and which contains *Lathyrus sativus*, must be regarded with suspicion.

One such case was lately brought to my notice. A prominent breeder of horses sent me a sample of mixed food composed of a certain preparation of Maize with peas. Shortly after beginning to feed with it several horses became ill, showing the well-known symptoms of *lathyrus* poisoning, such as paralysis of the hind quarters, falling about, &c. A number of the horses died. On samples of the peas used in the mixture being sent to me, I recognised them as being those of *Lathyrus sativus*, but whether they were of the poisonous or innocuous kind I could not say. The vendors behaved extremely well, recompensing the entire losses, which included the death of 11 horses (out of 23).

10. *Silage.*

A sample of good and well-made Silage was sent to me, and gave the following analysis :—

Moisture	60·80
Albuminoids	6·60
Carbohydrates	20·85
Woody Fibre	8·70
Mineral matter	3·05
	100·00
Nitrogen	1·05

This was composed of peas, vetches, oats and wheat, all autumn sown. The material had a nice smell and was not at all wet, nor was the fibre in any way excessive. It is now pretty well realised that, given good material, good silage can be made. There has been quite a considerable extension of late of the growing of crops purposely for silage rather than employing the silos merely for the saving of otherwise waste material.

11. *Milk Powder.*

Milk Powder has come largely into use for pig-feeding, and is quite a suitable material for this purpose. The prices charged for it are often far too high, and enquiry should always be made as to whether whole milk or separated milk has been used. The following is an instance of the latter, the analysis being :—

Moisture	9·86
Fat	1·5
Albuminoids	30·0
Milk-sugar, &c.	51·6
Mineral matter	6·97
	100·00

The price was 50*s.* per cwt. which is far too much, the powder being made from separated milk. Reference to my annual report of 1922 will show that such material as this was procurable at £20 a ton, and milk-powder from full cream milk at £29 per ton.

B. FERTILISERS.

While Feeding Stuffs have been comparatively high in price, Fertilisers, on the other hand, have been decidedly cheap.

1. *Superphosphate.*

The price of this has remained steady throughout the year at the low figure of £3 per ton for 30 per cent. and £3 7*s.* 6*d.* for 35 per cent. "soluble." The samples sent me have been found, without exception, to be good and up to quality.

2. *Basic Slag.*

This, again, has generally been found to be good and—what is an essential feature—of satisfactory fineness of grinding. The prices have been, for the first half of the year, £3 per ton for 30 per cent., £3 15*s.* for 35 per cent. and £4 for 40 per cent, these falling in October respectively to 47*s.* 6*d.*, 57*s.* 6*d.* and 67*s.* 6*d.* per ton. An instance of a specially good sample is that of one sent to me from Scotland. It tested :—

	Per cent.
Phosphates (total)	41·45
Fineness of grinding	90·76

3. *Ground Phosphates.*

Nauru and Ocean Island phosphates appear not to have been coming in at all, but North African phosphates have come considerably into use for direct application, after fine grinding, to the land. A good deal of attention has been directed to this last and important feature, and we are able now to get a guarantee given of these phosphates passing through a 120-mesh sieve instead of the 100-mesh sieve used in the case of Basic Slag. Occasionally a bad sample is met with, as instanced by the following, where a member bought, as he thought cheaply, at 50*s.* a ton, a ship's cargo of North African phosphate. On analysing this I found it to be of only medium quality and so coarsely ground as to be greatly deteriorated in value. It gave :—

	Per cent.
Phosphates (total)	48·94
Fineness of grinding	46·16

4. *Nitrogenous Fertilisers.*

A greal deal has been heard about the progress made in the production of synthetic ammonia, both in this country and abroad. The products—so far as the ordinary farmer is concerned—are not yet regularly on the market. Occasionally one hears of Muriate of Ammonia and Nitrate of Ammonia being used, and Urea, too, has been mentioned as a possible source of supply of nitrogen. Nevertheless, the two nitrogenous manures familiar to farmers—Sulphate of Ammonia and Nitrate of Soda—continue to hold the field, and they will do so unless it can be shown that other forms are alike cheaper and equally effective.

The price for Sulphate of Ammonia was, up to April, £15 5*s*. per ton, and, in November, £14 6*s*. per ton.

In addition to the ordinary Sulphate of Ammonia, which is generally sold on a basis of 24½ per cent. of ammonia, there is now manufactured and produced a practically pure salt known as Neutral Sulphate of Ammonia, containing over 25½ per cent. of ammonia, and which is in very fine and dry condition. This form, though it naturally costs rather more, possesses distinct advantages, more especially where the material has to be stored.

The price for Nitrate of Soda varied from £13 5*s*. per ton in January to £14 per ton in May to September, going to £13 5*s*. again in November.

5. *Shoddy.*

An instance of inferiority of quality is the following :—

	Per cent.
Moisture	40·62
Nitrogen	3·94
equal to Ammonia	4·79

A 10-ton lot of this had been purchased under a guarantee of its containing 7 per cent. ammonia. On delivery it was found to be very damp, and gave, as the analysis shows, a low result in ammonia. An allowance of £6 8*s*. 7*d*. was made on the 10-ton lot.

6. *Potash Salts and Kiln Dust.*

Reference has already been made to the new supplies of potash salts from the French Potash Mines in Alsace, the opening of which has dispensed with the necessity of relying, as was formerly the case, on the German mines at Stassfurt and elsewhere.

There has been consequently a more extended use of potash salts in agriculture, though it is mainly the cheaper forms known as "Kainit" that have found favour. The term "Kainit," though originally one applied to a salt of definite chemical composition and containing salts of magnesia and lime as well as of potash and soda, is now given generally to potash salts which contain the equivalent of from 14 to 20 per cent. of potash. The prices, which have been largely in buyers' favour, have been very stable, viz., for 14 per cent. of potash 47*s.* 6*d.* per ton and for 20 per cent, 52*s.* 6*d.* per ton. Similarly, the prices for sulphate of potash and muriate of potash have been stable at £12 and £8 per ton respectively.

As a consequence of the above, one hears little now of Kiln Dust. One sample sent me of this gave the following analysis :—

	Per cent.
Moisture	8·78
Organic matter	76·20
Sand	14·47
Potash	1·39

This had been offered as "a wonderfully cheap manure for potatoes" and as being very rich in potash, the price being £4 10*s.* per ton free on rail. My analysis showed that there was under one and a half per cent. of potash, and the price worked out at 65*s.* per unit of potash, whereas the current rate was about 3*s.* 6*d.* per unit! My correspondent, on receiving my report, was just able to stop delivery, the material fortunately having been purchased subject to analysis.

7. *Lime.*

(*a*) Ground Lime.
(*b*) Oyster Shells.
(*c*) Carbonate of Lime.

A paper read by me at the Farmers' Club, and which has been already referred to, has been responsible for numerous enquiries which I have received on the liming of land. Also a number of samples were sent me, and my experience was, as previously, that I found those of lump lime to be decidedly the best. While fully admitting the advantage of ground lime in respect of better distribution, and the facility for putting on small quantities at a time, my experience has been that ground lime is almost universally of inferior quality to lump lime. Indeed, I can hardly mention a firm who will supply it of equal quality to the lump lime. Either it is not made at all, or firms, like the Buxton Lime Firms, Ltd., have given it up in favour of special preparations which, while undoubtedly being in nice and suitable condition for application, must necessarily be relatively dear. Out of the different samples of ground lime analysed by me during the year, I have only had one really good one, and that was from a delivery which I ordered for use on my own farm, and which contained 92½ per cent. of lime. The following are instances of samples sent me by members :

(*a*) GROUND LIME.

	1	2	3	4	5
Oxide of Iron and Alumina .	7·95	6·41	1·98	1·09	4·95
Lime	47·53	64·45	69·18	81·98	62·65
Magnesia	23·24	4·65	4·57	12·66	11·61
Carbonic Acid, Water, &c. .	15·52	18·27	13·39		
Silica	5·76	6·22	10·88	4·27	20·79
	100·00	100·00	100·00	100·00	100·0

No. 1 was sent from Herefordshire. It was called "Derbyshire ground burnt agricultural lime," and cost 39*s*. a ton. It was not well ground and was a magnesian lime, in my opinion, unsuitable for agricultural use. The price of 39*s*. a ton, considering that I can myself get lime at the price of 35*s*. 9*d*. per ton delivered, is excessive for such a lime as this.

No. 2. This came from Perthshire and had cost 49*s*. 6*d*. per ton. It was an inferior sample, not being very well ground either.

No. 3. This came from Yorkshire and cost 39*s*. 1*d*. per ton delivered. It compares, it will be seen, very badly with the lime which I obtained for my own farm at 35*s*. 9*d*. a ton delivered.

No. 4 was sent me from Surrey. It was well ground, and, though it contained a good deal of carbonic acid, possibly owing to imperfect burning, or to subsequent exposure to atmosphere, it was of fair quality. It cost 32*s*. 3*d*. per ton delivered.

No. 5. This came from Wiltshire and was supposed to contain 83·6 per cent. of lime. It cost 39*s*. 6*d*. per ton delivered. It contained only 62½ per cent. of lime, and, though finely ground, had a quantity of coal in it. The sellers, a Co-operative Association doing business at Bristol, explained that a wrong lot had been sent and made an allowance of 12*s*. 6*d*. per ton.

(*b*) OYSTER SHELLS.

Moisture, Organic matter, &c.	7·73
Oxide of Iron and Alumina	·99
Carbonate of Lime	85·54
Insoluble Siliceous matter	5·74
	100·00

This was finely ground and could be obtained in Kent for the mere payment of carriage, which came to seven or eight shillings a ton. For the purpose of lightening stiff or clay land, and such as requires lime, the material would be distinctly useful.

(c) CARBONATE OF LIME.

Oxide of Iron and Alumina	·42
Lime	39·95
Magnesia	·32
Silica	·52
Water, Carbonic Acid, &c.	58·79
	100·00
Caustic Lime	3·85
Carbonate of Lime	64·46

This was refuse from a manufacturing process. It cost 5*s.* per ton at Widnes and could be got in Shropshire for 13*s.* per ton delivered. It was finely divided and was easy of application, and would just about pay to get for land that needs liming.

MISCELLANEOUS.

Sugar Beet.

Samples sent me from the March district gave the following results :—

Percentage of	1	2	3	4	5	6	7	8	9	10
Sugar in Roots	15·5	16·7	17·1	17·7	17·9	18·9	14·3	13·7	15·7	15·5

Hops, Hop Leaves and Hop Bine.

The following analyses of different parts of the Hop plant will be of interest.

	Hops		Hop Leaves		Hop Bine	
	In natural state	In dried state	In natural state	In dried state	In natural state	In dried state
Moisture	61·41	—	49·93	—	64·32	—
[1]Organic Matter	35·46	91·90	40·17	80·24	33·04	92·61
[2]Phosphoric Acid	·47	1·22	·34	·68	·17	·48
Lime	·49	1·27	4·34	8·68	·71	2·00
Magnesia	·21	·55	·86	1·72	·18	·51
[3]Alkalies, Carbonic Acid, Oxide of Iron, Alumina, etc.	1·72	4·45	3·60	7·16	1·54	4·27
Silica and Sand	·24	·61	·76	1·52	·04	·13
	100·00	100·00	100·00	100·00	100·00	100·00
[1] containing Nitrogen	1·48	3·83	1·88	3·76	·74	2·09
equal to Ammonia	1·79	4·65	2·28	4·57	·91	2·54
[2] equal to Phosphate of Lime	1·02	2·66	·74	1·48	·37	1·04
[3] containing Potash	·88	2·28	·58	1·15	·52	1·46

These analyses show in particular the relatively high percentages of potash and phosphoric acid present in the Hops themselves, the Bine being the poorest in phosphoric acid. On the other hand, the Leaves are very rich in lime and the Hops least so. Magnesia, again, is prominent in the leaves, but not in the other parts. Both Hops and Leaves contain more nitrogen than the Bine.

The following is a list of the samples sent to me by Members during the twelve months, December 1, 1923, to November 30, 1924:—

Linseed Cake	15
Cotton Cake and Meal	10
Compound Feeding Cake and Meal	49
Palm Nut Cake	2
Ground Nut Cake	2
Cereals, Offals, &c.	39
Silage	4
Superphosphate	12
Compound Manures	12
Raw and Steamed Bones	8
Meat Meals	3
Meat and Bone Meals	2
Fish Meals	8
Basic Slag	11
North African Phosphate	2
Sulphate of Ammonia	5
Flue Dust, Soot, &c.	3
Potash Materials	9
Shoddy, &c.	25
Lime, Chalk, &c.	33
Milk, Butter, &c.	24
Waters	24
Soils	27
Miscellaneous	26
	355

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ANNUAL REPORT FOR 1924 OF THE BOTANIST

THE somewhat exceptional climatic conditions of the year 1923–4 had a marked influence on the nature of the enquiries received by the Botanical Department. During the latter months of 1923 they consisted, as is usually the case, of enquiries regarding the germinating capacity of samples of wheat and winter oats which were required for immediate sowing. This operation was carried out with difficulty and under unsatisfactory conditions in many parts of the country, with the result that the plant had not made its normal growth before the winter set in. By the beginning of 1924 it was evident that many of the autumn-sown crops, especially on the heavier lands, were suffering considerably from the climatic conditions. Those sown sufficiently early to have become well established by the middle of November were, in general, standing the weather satisfactorily, but the later sowings were often in a bad condition. The rapid alternation of frosts and thaws so characteristic of the year continued well on into the spring, and even where no damage resulted from the actual freezing of the plants the heaving of the top layers of the soil broke their root-holds with disastrous consequences. The long-continued winter was bound to test out the practices which had come into being as the result of a succession of unusually mild ones. The practice of replacing a portion of the spring-sown oat crop by autumn sowings, primarily with the object of avoiding the attacks of frit-fly, had become fairly general and the results had proved satisfactory in perhaps the majority of cases. Unfortunately, instead of trusting solely to hardy forms such as the grey and black winter oats, known from the experience of many years to winter safely as a rule, some of the ordinary spring oats were finding their way into the winter shifts. Such forms as Bountiful and Supreme, for instance, which had come through the previous three winters in safety and cropped very satisfactorily, were sown somewhat extensively. They failed to withstand the conditions of 1923–4, and on the heavier lands the crops were frequently completely crippled. One of the newer oats, Marvellous, stated to be suitable for winter sowing, failed in the same fashion and showed once for all that its winter hardiness could not be relied on. From data collected early in the spring it failed very generally on the wetter types of soils, but it succeeded here and there on the lighter, well-drained types, especially when sown somewhat late and then well rolled.

The cold was not intense enough to damage wheat, which is normally a hardier plant, to any great extent, and crop failures must be ascribed to the lifting of the young plants. Many of these failures offered one of the most difficult problems the grower has to face, namely to decide whether the remaining plant is thick enough to leave or whether it should be ploughed out or patched. Patching is best carried out by cross-drilling with an early maturing wheat such as Red Marvel, but supplies of seed were so difficult to obtain that many were driven to make use of barley in its place and put up with a mixed crop suitable only for feeding purposes.

By the early spring it was evident that the heavy-land farmers were at a disadvantage compared with those farming lighter soils, and as the season went on it became clear that, barring some disaster, the latter would experience an unusually satisfactory year. But from then onwards until one of the most difficult harvests of recent years had been gathered in, there were continuous threats of crop failures either from excessive rain or from epidemics of disease.

The abnormal conditions were associated, as was to be expected perhaps, with unusual outbreaks of plant diseases. Potato blight (*Phytophthora infestans*) put in an appearance very early in the year, its coming being heralded by importations of large quantities of early potatoes in a badly diseased condition from the Channel Islands. The first outbreak to which the attention of the Botanical Department was called occurred in Wiltshire, on a crop of Early Eclipse. Specimens from this crop were received in the first week of June, that is some six weeks earlier than the disease usually becomes sufficiently abundant to be noticed. Its presence had been detected a week or so earlier and the crop had been sprayed to prevent the fungus from spreading to adjoining main crops. But even so the fruiting stage of the fungus was abundant on the foliage and stems. Fortunately for the potato-growers, comparatively low temperatures prevailed through the season and did much to prevent a severe epidemic. Had it not been for this the 1924 crop would probably have been a failure, for the conditions for spraying were exceptionally bad.

The bean crop, especially in the southern counties, was considerably damaged by an obscure bacterial disease, the symptoms of which are accurately described by its popular name " chocolate spot." Though to be found almost invariably, it rarely appears to cause much loss. But in the spring of 1924 the attacks were so severe that some crops were completely defoliated and consequently had to be ploughed in. In other cases the yield was below the average owing to the partial loss of the foliage.

The barley crop on the lighter soils was more satisfactory than might have been expected, but on stiff soils like those of the boulder-clay regions it was often a more or less complete failure. In the middle of June fields were to be seen in which the plants were only some six inches in height, and the foliage of a pale primrose-green colour. The yields were negligible, and it would have been better policy to abandon the crop and clean the land instead of trusting to a crop recovery. The fungoid pests were less in evidence than usual, with the exception of Helminthosporium in fields of winter-sown six-row barley. The attacks were so serious that the yield was probably diminished to one-half the normal by the killing of the ears soon after their emergence from the leaf sheaths.

The common pests of the wheat crop—mildew, yellow rust and bunt—were no worse than usual, if as bad. But a second rust species, *Puccinia triticina* or brown rust, which has been noted frequently during the past five years, was very prevalent. It did comparatively little damage to the early ripening crops, but where maturation was delayed through late planting, or the vigorous growth due to the scantiness of the plant or the check caused by water-logging of the soil its effects were serious. The outbreak on the foliage probably passed unnoticed by those unfamiliar with the fungus, but the blackening of the leaf sheaths and of the top joint of the straw was so unusual an appearance that many enquiries were made. In badly attacked crops the grain was shrivelled and the yields smaller than anticipated.

Fungoid pests were troublesome to the fruit-growers as well. Most of the usual ones put in an appearance early in the season, but with the exception of the scab which attacks apples and pears they were not more virulent than in more ordinary seasons. The scab, however, revelled in the weather conditions and took a heavy toll of the abundant pear crop and of an apple crop, which early in the season promised to be more valuable than usual. It attacked the young fruits soon after the petals had fallen and much that escaped then became infected towards the end of the summer. Even when sustained attempts to control it were made they failed, and there can be little doubt that a plentiful supply of infective material, in the form of leaves and twigs carrying the fungus, will be available for starting up fresh outbreaks in the coming year.

At the end of the year the list of pests contained more species than it has during the past ten years. But long as it is, the only unusual one in it is the brown rust. Its most striking feature, perhaps, is to be found in the comparatively small number of enquiries regarding the whole group of mildews and such diseases of the potato as black-leg, curl and mosaic.

Although 1923–4 was undoubtedly one of the worst "weed-years" there has been this century, specimens sent in for identification were not particularly numerous. Amongst the few of any general interest was the common persicaria (*Polygonum Persicaria*), which was sent in three times once from an old pasture and twice from newly sown grassland where it was said to be colonizing the ground rapidly. Its presence is usually a symptom of inadequate drainage. Unfortunately there are grounds for thinking that the effects of the past season will be felt in the coming year. It was very difficult, if not impossible, in many parts of the country to carry out the usual cleaning operations of the spring and early summer, and annual weeds seeded down abundantly before attempts could be made to exterminate them. The perennial weeds also, such as docks and thistles, responded well to these conditions and the lodging of the barley and oat crops often revealed an amazing growth of these plants. Left exposed to the light and air, they seeded freely, and by the time the crops were gathered most of the seed had been shed.

As was the case in the previous year, several members sent flowering specimens of more or less uncommon grasses such as *Holcus mollis*, a near relative of Yorkshire fog, *Agrostis spica-venti*, a grass somewhat resembling golden oat grass, and *Brachypodium sylvaticum*, false brome, asking whether they were of any agricultural value. Such species are often locally abundant on soils which, owing either to their extreme lightness or extreme heaviness, do not carry a vegetation composed of the ordinary agricultural grasses, but even so their value is probably small.

Those who were putting land down to grass in 1924 were exceptionally fortunate, for as the result of the continuous freezing and thawing of the surface soil an excellent tilth was obtained without much labour or expense, and further, during March good sowing conditions were prevalent. The rains of April and the early part of May came opportunely and were distributed so uniformly that over the greater part of the country, if not everywhere, the chances of the seedling grasses drying out were non-existent. Under these favourable conditions the grass grew with great rapidity, and by the end of May much of the new permanent grassland was well covered, and giving promise of the formation of a close sward in a month or two rather than in a year or two. A query received in June as to how a laid crop should be treated may serve to show how rapid growth was when the opportunity for sowing early had been taken and all conditions were favourable.

The grassland enquiries were for the most part concerned with the management of young fields. Several referred to the abundant crops of clovers produced by the use of basic slag, and one to a large crop of meadow vetchling (*Lathyrus pratensis*) resulting from its use. The weeds of permanent grassland received less attention than has been the case for the last ten years. Amongst the few reported on were yellow rattle, persicaria, and soft brome grass.

Cereals predominated in the seed samples sent for testing. Those of 1923 growth were, on the whole, very satisfactory with regard to their germination and their freedom from bunt in the case of wheat. The clover samples were less numerous than in the preceding year, consisting of only nine of red clover, one of wild white clover, and two each of sainfoin and black medick. Whilst the germination was good the purity was generally unsatisfactory, and with the exception of the sainfoins all would have been better for cleaning with more efficient tackle than the ordinary farm can provide. The germination of the 1924 growth has proved better than the appearance of the samples indicated. The presence of sprouted grain was only to be expected, but in the worst sample examined so far it only amounted to 5 per cent. The mean value of the germinating capacity of some 30 samples of wheat was 95 per cent. The figure seems high, for almost every sample was abnormally moist, and one exceptionally damp one, which was dried out as a matter of curiosity, was found to contain 24 per cent. of moisture.

Amongst plants which had either proved poisonous to live stock or were suspected of being so, were *Ranunculus sceleratus*, the celery-leaved Ranunculus, *Solanum nigrum*, black nightshade, and garden forms of Retinospora and Rhododendron. The buttercup is unquestionably a dangerous species. Though not widely distributed in this country, it is abundant in some localities, generally as a ditchside weed. It is an annual which can easily be exterminated by preventing the formation of seeds by mowing. The black nightshade is probably harmless, and as it is only common as a weed of arable land stock are not often likely to have access to it. The Retinospora (species not reported) may possibly have been responsible for a case of poisoning. Little is known with regard to the poisonous properties of conifers and stock usually refrain from eating any of them with the exception of yew—one of the most dangerous of all plants.

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ANNUAL REPORT FOR 1924 OF THE ZOOLOGIST.

Introduction.

The year 1924 was remarkably uneventful as regards insect pests. Applications for advice were extraordinarily few in number during the summer months and such cases of attack as were reported seldom presented any points of special interest. This is largely to be accounted for by the unusual weather conditions. In the spring there were signs of serious impending attacks by various pests which were abruptly checked by the heavy rains, and later on some of the customary injurious insects, such as green-fly, were practically absent, while such as were present attracted little attention because their effect was small in comparison with that of the general weather conditions, which alone were sufficient to account for the partial failure of many crops.

It was noticeable that many of the common pests made a very late appearance, and that fact much mitigated the injury done by them, for the plants attacked had made good growth before their arrival. Those least adversely affected by the heavy rains were such pests as wireworm and eelworm, while slugs were abnormally plentiful and were the outstanding animal pests of the year, taking toll of all manner of crops. The dearth of important insect attacks was less marked in the Fruit section, where caterpillars of a considerable number of different moths were reported to be at work, though green-fly, so abundant in 1923, was practically absent. On the whole the weather conditions appeared to be greatly more favourable to fungoid than to insect pests, and on the latter there is little of interest to report.

A certain number of animal parasites, and of insects infesting houses and stored products have been sent for identification.

CEREALS.

None of the insect pests of cereals were much in evidence during the past season. I received no complaints of wheat bulb-fly, and frit-fly in oats, so prevalent in 1922, though it occurred here and there, did comparatively little harm. In some cases the second attack—in the ear—was more noticeable than the June attack, which is generally by far the more destructive.

There was a certain amount of gout-fly in barley, and some rather bad cases of eelworm in oats were notified. Mr. Harper Gray finds that in the north "Marvellous" is not a safe winter oat, as it seems to be especially liable to eelworm attack. It is not difficult to understand that eelworm should be prevalent in a year unfavourable to the ordinary corn flies, for it would be unaffected by the heavy rains, which must have destroyed myriads of such frail insects as frit-flies. So, also, with wireworm, which, as usual, did considerable damage to corn crops.

ROOTS.

There is little of interest to report in this section. The most universal pest was slugs. Other attacks notified were root-maggots, seed-beetles, mangold-fly, mud-beetles and a case of cockchafer grubs destroying sugar beet. Mangold-fly attacks were very local, and often very late, so that good growth had been made before much destruction of leaf. The mud-beetle, *Helophorus rugosus*, seems to be a pest which is on the increase unless it has often been overlooked and its injury attributed to wireworm. Though belonging to a group of beetles of which many live in the water, this species is by no means confined to swampy ground. It generally attacks late-sown turnips, gnawing and disfiguring the roots, but it is recorded to have destroyed lettuces following after turnips.

FARM AND GARDEN CROPS.

There is little doubt that slugs did more harm in gardens and allotments in 1924 than any other single pest. They were particularly severe on the cabbage tribe, for they were abundant all through the season and in many cases cleared off the young plants, while the cabbage caterpillars, though they eventually became very numerous, made so late an appearance that the plants were for the most part well grown. These latter were more than usually destructive to sprouts, which were far enough advanced to attract the caterpillars to the new shoots.

Garden peas were threatened in the spring with a bad attack of *Sitona* weevils, and would doubtless have suffered severely had the weather remained dry, but they were saved by the rains. Pea Thrips attacks were similarly checked and did little harm. On the other hand the Pea Moth (*Cydia nigricana*) was more injurious than I have ever known it, and this was probably due to the fact that the weather was fine just at the time when the moth was about, while the development of its caterpillar in the pod would be unaffected by external influences. It was exceptionally troublesome this year, but it is an annual nuisance in gardens and allotments and is apparently on the increase, and it is desirable that more notice should be taken of it. Its comparative absence in field peas is, of course, due to rotation. A short account of this pest may be given here.

In shelling peas—especially late varieties—it is a common experience to find one or more small yellowish caterpillars in the pod, feeding on the seeds. This year, pod after pod would be found to contain two or three such caterpillars, and a large proportion of the peas in the later crops had to be rejected as too badly damaged for use. It was particularly noticeable in pods which were kept for seed, a large pod often yielding no more than two or three sound seeds. The caterpillars are those of a small tortrix moth which appears in June and lays eggs in the pea blossoms, and the tiny caterpillars which hatch out enter the developing pods without doing them any immediate injury. Their objective is the seeds, and to destroy these at the outset would be suicidal, and it is not till they are well grown that they are attacked and afford sufficient food for the caterpillars to attain maturity. Early peas generally escape—presumably because the moth has not appeared at their time of blossoming. When the caterpillars are fully fed they leave the pods and go to earth, where they hibernate as chrysalids, giving rise to moths the following year. When the last crop of peas has been gathered there are always many pods left which were rejected as too old or diseased. These are sure to contain pea-moth caterpillars, and care should be taken to destroy them, and not merely to throw them on the rubbish heap. But most will already have gone to earth, and in a garden next year's peas will not be far to seek, so that it is very desirable to make some attempt to destroy the chrysalids in the soil. Miss Ormerod recommended the plan of collecting the haulm and other rubbish, laying it along the rows where the infested peas stood, and burning it there, so as to destroy at once the caterpillars surviving in the pods and the chrysalids in the surface soil.

Though fields peas are less liable to attack, pretty severe infestations are occasionally met with, in which case deep ploughing is advisable.

Celery-fly was one of the pests which appeared much later than usual this year, but then became very abundant. In October one saw many rows in which nearly every leaf was blistered, but growth was no longer active and the stalks were but little injured. Asparagus beetle is always present to some extent, and some very bad attacks were notified during the past season.

A correspondent wrote to say that in 1923 a clover crop was so badly infested with seed-weevil that it only yielded two bushels of seed per acre, and that the weevil was more abundant than ever this season. This well illustrates the danger of allowing a badly diseased crop to go to seed, for not only is the yield unsatisfactory but myriads of weevils are bred to give future trouble. If a crop is badly attacked—as is easily seen by the number of dead-looking clover heads which on examination are found to contain the maggots—it should be cut at once and used for fodder, or stored in a silo, which would effectually dispose of the pest.

FRUIT.

The only aphis of which I received complaints was the Woolly Aphis. Other species appeared in due course but were practically exterminated by the heavy rains, and their comparative absence contrasted remarkably with their extreme abundance in 1923. Caterpillars of various kinds were, however, plentiful, and the number of different species, with different habits, which now infest our fruit trees renders the problem of spraying a very difficult one. And the difficulty is increased in a mixed orchard by the varying dates of blossoming of the different trees. When the outstanding pest was the winter-moth it was fairly easy to deal with it, but already in some districts its place seems to be taken by tortrix moths which can fly perfectly well, and are not amenable to the banding treatment. Then again there are such comparatively new pests as Capsid bugs, for which the spraying is of a different nature and at a different date. In fact it is no longer possible to suggest methods and dates of treatment suitable to all cases, and the special pests most abundant in any particular fruit garden have to be mainly considered.

Last year I called attention to Sir George Watt's assertion that black currants could be cured of " big bud " by firing. So far the method is only in the experimental stage, and much further trial is necessary before it can be recommended as a practical measure. Sir George has certainly demonstrated that, if properly carried out, it results in more than 90 per cent. of the plants sending up strong, mite-free shoots during the ensuing summer, but what requires to be known is how the method compares, in expense, and in the rapidity and weight of future crops, with the old method of grubbing up and re-planting. It would be a very interesting experiment to try the two plans simultaneously in neighbouring plots where the yield could be directly compared. Unfortunately firing does not cure reversion.

I was not able to persuade anyone to try the firing method on any considerable scale last season, but one correspondent, Mr. Charles F. Mathieson, reports of some bushes that he burned respectively in November and February : " The bushes cut and burned on November 19 have made good growth, and as far as I can tell are free from big bud, as they look clean and healthy. Those burned on February 1, although weaker in growth, also look clean. They were younger than the first ones fired." I was unable to find any mite in the shoots Mr. Mathieson sent me.

Meanwhile some success is reported of other methods of combating the pest. There is no doubt that Mr. Goude's plan of taking " green " cuttings has come to stay. The new growths are at first free from mite even on infested bushes, and make remarkable progress when removed and struck. Then it is found that spraying infested plants, when the leaves are about the size of a shilling, with lime and sulphur of winter strength does them no permanent injury but checks the mite, and that another (weaker) spraying as soon as the fruit is gathered is of additional use.

MISCELLANEOUS NOTES.

There have been several cases reported of furniture or store rooms infested by mites. The particular species has usually been either *Glyciphagus domesticus* or *Tyroglyphus longior*—the former being sometimes a distinct nuisance and very difficult to get rid of. On two occasions, however, the mites complained of turned out to be only casual visitors to the house, being of a group which is parasitic not on stored foods but on animals. In one case they were traced to starlings' nests under the eaves, whence they had wandered through the open window into the bedroom, and they quickly disappeared when the nests were cleared away. In the other case mice were the probable "hosts."

A year seldom passes without the receipt of some enquiry about hair-worms (*Gordius aquaticus*),—very thin worms several inches long which occur sometimes in water-taps, or in grass after rain. They are quite harmless, but have an interesting life-history, their early stages being passed as parasites in water insects.

CECIL WARBURTON.

School of Agriculture,
Cambridge.

Royal Agricultural Society of England.

(*Established May 9th,* 1838, *as the* English Agricultural Society, *and incorporated by Royal Charter on March 26th,* 1840.)

Patron.

HIS MOST GRACIOUS MAJESTY THE KING.

President for 1925.

SIR GILBERT GREENALL, BART., C.V.O

Year when first elected on Council.	**Trustees.**
1919	H.R.H. The Prince of Wales, K.G., *York House, S.W.1.*
1922	H.R.H. The Duke of York, K.G., *White Lodge, Richmond Park.*
1905	Adeane, Charles, C.B., *Babraham Hall, Cambridge.*
1895	Bedford, Duke of, K.G., *Woburn Abbey, Bedfordshire.*
1871	Bowen-Jones, Sir J. B., Bart., *Council House Court, Shrewsbury.*
1893	Cornwallis, Col. F. S. W., *Linton Park, Maidstone, Kent.*
1885	Coventry, Earl of, *Croome Court, Severn Stoke, Worcestershire.*
1887	Crutchley, Percy, *Sunninghill Lodge, Ascot, Berkshire.*
1898	Devonshire, Duke of, K.G., *Chatsworth, Bakewell, Derbyshire.*
1904	Greenall, Sir Gilbert, Bart., C.V.O., *Walton Hall, Warrington.*
1899	Northbrook, Earl of, *Stratton, Micheldever, Hampshire.*
1881	Parker, Hon. Cecil T., *The Grove, Corsham, Wiltshire.*
	Vice-Presidents.
1897	Coltman-Rogers, C., *Stanage Park, Brampton Bryan.*
1908	Derby, Earl of, K.G., *Knowsley, Prescot, Lancashire.*
1924	Desborough, Lord, K.C.V.O., *Taplow Court, Buckinghamshire.*
1900	Greaves, R. M., *Wern, Portmadoc, North Wales.*
1910	Harlech, Lord, *Brogyntyn, Oswestry, Shropshire.*
1904	Mathews, Ernest, C.V.O., *Little Shardeloes, Amersham, Bucks.*
1915	Portland, Duke of, K.G., *Welbeck Abbey, Worksop, Notts.*
1914	Powis, Earl of, *Powis Castle, Welshpool, Mont.*
1897	Reynard, Frederick, *Sunderlandwick, Driffield, Yorkshire.*
1905	Richmond and Gordon, Duke of, K.G., *Goodwood, Chichester.*
1891	Stanyforth, Lt.-Col. E. W., C.B., *Kirk Hammerton Hall, York.*
1907	Yarborough, Earl of, *Brocklesby Park, Habrough, Lincolnshire.*
	Ordinary Members of the Council.
1922	Alexander, Hubert, *The Croft, Sully, near Cardiff (Glamorgan).*
1923	Ashton, T. W., *Estate Office, Hursley Park, Winchester (Hampshire).*
1905	Aveling, Thomas L., *Pettings Court, Wrotham (Kent).*
1924	Barton, Bertram H., *Straffan Court, Straffan (Ireland).*
1911	Behrens, Major Clive, *Swinton Grange, Malton (Yorks, N. Riding).*
1922	Bell, John, *The Hall, Thirsk (Nottinghamshire).*
1921	Bledisloe, Lord, K.B.E., *Lydney Park (Gloucestershire).*
1922	Brocklebank, Rev. C. H., *Bartlow House, near Cambridge (Cambridgeshire).*
1906	Brocklehurst, Henry Dent, *Sudeley Castle, Winchcombe (Glos.).*
1910	Brown, Davis, *Marham Hall, King's Lynn (Norfolk).*
1918	Burke, U. Roland, *Chatsworth, Bakewell (Derbyshire).*
1923	Burkitt, William, *Grange Hill, Bishop Auckland (Durham).*
1921	Burrell, Sir Merrik R., Bart., *Knepp Castle, Horsham (Sussex).*
1905	Carr, Richardson, *Mill Lawn, Burley, Brockenhurst, Hants. (Hertfordshire).*
1913	Chapman, W. W., *4, Mowbray House, Norfolk Street, W.C.2 (London).*
1919	Combes, Daniel, *Dinton Manor, Salisbury (Wiltshire).*
1924	Cotterell, Sir John R. G., Bart., *Garnons, Hereford (Herefordshire).*
1921	Courthope, Col. G. L., M.C., M.P., *Whiligh (Sussex).*
1917	Curre, Col. Edward, *Itton Court, Chepstow (Monmouthshire).*
1921	Davies, David, M.P., *Broneirion, Llandinam (North Wales).*
1923	Dickie, Robert, *Knockenjig, Sanquhar (Scotland).*
1923	Disbrowe-Wise, Lt.-Col. H. E. D., *Walton Hall, Burton on-Trent (Derbyshire).*
1913	Evens, John, *Burton, near Lincoln (Lincolnshire).*

Ordinary Members of the Council (*continued*).

Year when first elected Council.	
1924	Everard, W. Lindsay, M.P., *Ratcliffe Hall, Leicester* (*Leicestershire*).
1905	Falconer, James, *Northbrook Farm, Micheldever Station* (*Hampshire*).
1921	Fenwick, E. Guy, *North Luffenham Hall, Stamford* (*Rutland*).
1906	Fitzwalter, Lord, *Goodnestone, Canterbury* (*Kent*).
1924	*Garrett, Col. Frank, C.B.E., *Aldringham House, nr. Leiston, Suffolk.*
1922	Gates, B. J., *Wing Park, Leighton Buzzard* (*Buckinghamshire*).
1916	Gilbey, Sir Walter, Bart., *Elsenham Hall, Elsenham* (*Essex*).
1921	Groom, Hubert, *Northgate House, Warham, Wells* (*Norfolk*).
1905	Harris, Joseph, *Brackenbrough Tower, Carlisle* (*Cumberland*).
1903	Harrison, William, *Albion Iron Works, Leigh* (*Lancashire*).
1909	Hazlerigg, Sir Arthur G., Bart., *Noseley Hall* (*Leicestershire*).
1905	Hiscock, Arthur, *Manor France Farm, Blandford* (*Dorset*).
1919	Hobbs, Robert, *Kelmscott, Lechlade, Glos.* (*Oxfordshire*).
1923	Howkins, Benjamin, *Bromham, Bedford* (*Bedfordshire*).
1923	Johnstone, Capt. G. H., *Trewithen, Grampound Road* (*Cornwall*).
1913	Kelly, Major Dunbar, D.S.O., *Godinton, Ashford, Kent* (*Surrey*).
1912	Lane-Fox, Lt.-Col. G. R., M.P., *Bramham Park, Boston Spa* (*Yorks, W. Riding*).
1918	Llewelyn, Col. C. Venables, *Llysdinam, Newbridge-on-Wye* (*South Wales*).
1909	Luddington, J. L., *Wallington Hall, King's Lynn* (*Cambridgeshire*).
1909	Mansell, Alfred, *College Hill, Shrewsbury* (*Shropshire*).
1922	Matthews, Frank P., 27 *Cavendish Square, W.*1 (*London*).
1904	Middleton, Christopher, *Vane Terrace, Darlington* (*Durham*).
1922	Mildmay of Flete, Lord, *Flete, Ermington S.O.* (*Devon*).
1922	Miln, G. P., *Abbot's Lodge, Chester* (*Cheshire*).
1920	Montgomery, Andrew M., *Netherhall, Castle Douglas* (*Scotland*).
1916	Mount, Sir William A., Bart., C.B.E., *Wasing Place, Reading* (*Berkshire*).
1911	Myatt, John, *Lincoln House, Shenstone, Lichfield* (*Staffordshire*).
1922	Neilson, R. B., *Holmwood, Sandiway* (*Cheshire*).
1922	Newton, Sir Douglas, K.B.E., M.P., *Croxton Park, St. Neots* (*Huntingdonshire*).
1915	Oliver-Bellasis, Capt. R., *Shilton House, Coventry* (*Warwickshire*).
1910	Overman, Henry, *Weasenham, King's Lynn* (*Norfolk*).
1909	Patterson, R. G., *Acton Hill, Stafford* (*Staffordshire*).
1912	Perkin, A. W., *Greenford Green, Harrow* (*Middlesex*).
1921	Platt, Major Eric J. W., *Gorddinog, Llanfairfechan* (*North Wales*).
1916	Price, F. Hamlyn, 7 *Harley Gardens, The Boltons, S.W.*10 (*London*).
1924	*Ransome, Edward C., *Highwood, Ipswich.*
1905	Rea, George Grey, *Doddington, Wooler R.S.O.* (*Northumberland*).
1923	Sample, C. H., 29 *Grainger Street West, Newcastle-on-Tyne* (*Northumberland*).
1922	Sherwood, S. R., *Playford, Ipswich* (*Suffolk*).
1921	Silcock, T. B., *Arthfield House, Poulton-le-Fylde* (*Lancashire*).
1907	Smith, Fred, *Deben Haugh, Woodbridge* (*Suffolk*).
1921	*Somerville, Prof. W., M.A., D.Sc., *School of Rural Economy, Oxford.*
1912	Strachie, Lord, *Sutton Court, Pensford* (*Somerset*).
1923	Straker, Frederick, *Angerton Hall, Morpeth* (*Northumberland*).
1922	Strutt, Hon. Edward G., C.H., *Whitelands, Hatfield Peverel* (*Essex*).
1923	Tanner, E. Craig, *Eyton-on-Severn, Cross Houses* (*Shropshire*).
1918	Taylor, C. Howard, *Middlewood Hall, Barnsley* (*Yorks, W. Riding*).
1920	Thornton, F. H., *Kingsthorpe Hall, Northampton* (*Northants*).
1907	Tindall, C. W., *Park House, Louth* (*Lincolnshire*).
1923	Tomkinson, Major C. W., *Willington Hall, Tarporley* (*Cheshire*).
1923	Twentyman, J. R., *Kirby Misperton Hall, Pickering* (*Yorks, N. Riding*).
1924	Wakefield, Jacob, *Sedgwick House, Kendal* (*Westmorland*).
1889	Wheeler, Col. E. Vincent V., *Newnham Court, Tenbury* (*Worcs.*).
1921	*Whetham, C. Dampier, M.A., F.R.S., *Upwater Lodge, Cambridge.*
1918	Wickham-Boynton, T. L., *Burton Agnes Hall* (*Yorks, E. Riding*).

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* *Nominated Member of Council.*

STANDING COMMITTEES.

⁂ Under Bye-Law 73, the President is a Member *ex officio* of all Committees, and the Trustees and Vice-Presidents are Members *ex officio* of all Standing Committees except the Committee of Selection and General Purposes.

The Honorary Director is a Member ex officio of all Committees.

Finance Committee.

Adeane, C. (*Chairman*)
Devonshire, Duke of
Northbrook, Earl of
Burrell, Sir Merrik R.
Greenall, Sir Gilbert
Aveling, T. L.
Burke, U. Roland
Carr, Richardson
Cornwallis, Col.
Courthope, Col. G. L.
Crutchley, Percy
Greaves, R. M.
Harrison, W.
Mansell, Alfred
Mathews, Ernest
Wheeler, Col.

Journal and Education Committee.

Cornwallis, Col. (*Chairman*)
Bledisloe, Lord
Fitzwalter, Lord
Mildmay of Flete, Lord
Bowen-Jones, Sir J. B.
Burrell, Sir Merrik R.
Adeane, C.
Brocklebank, Rev. C. H.
Chapman, W. W.
Coltman-Rogers, C.
Courthope, Col. G. L.
Disbrowe-Wise, Col
Luddington, J. L.
Mansell, Alfred
Mathews, Ernest
Price, F. Hamlyn
Wheeler, Col.

Chemical Committee.

Luddington, J. L. (*Chairman*)
Bledisloe, Lord
Harlech, Lord
Bowen-Jones, Sir J. B.
Cotterell, Sir John
Brocklehurst, H. D.
Burkitt, W.
Falconer, J.
Greaves, R. M.
Middleton, C.
Neilson, R. B.
Oliver-Bellasis, Capt. R.
Patterson, R. G.
Reynard, F.
Sample, C. H.
Silcock, T. B.
Smith, Fred
Somerville, Prof.
Taylor, C. Howard
Whetham, C. D.

Botanical and Zoological Committee.

Coltman-Rogers, C. (*Chairman*)
Fitzwalter, Lord
Bowen-Jones, Sir J. B.
Hazlerigg, Sir A. G.
Newton, Sir Douglas
Brocklehurst, H. D.
Brown, Davis
Cornwallis, Col.
Courthope, Col. G. L.
Llewelyn, Col.
Miln, G. P.
Taylor, C. Howard
Wheeler, Col.

Veterinary Committee.

Northbrook, Earl of (*Chairman*)
Mildmay of Flete, Lord
Parker, Hon. C. T.
Burrell, Sir Merrik R.
Cotterell, Sir John
Gilbey, Sir Walter
McFadyean, Prof. Sir J.
Ashton, T. W.
Behrens, Major Clive
Bell, John
Brown, Davis
Burke, U. Roland
Carr, Richardson
Chapman, W. W.
Crutchley, Percy
Disbrowe-Wise, Col.
Fenwick, E. Guy
Gates, B. J.
Harris, Joseph
Mansell, Alfred
Mathews, Ernest
Montgomery, A. M.
Overman, Henry
Silcock, T. B.
Smith, Fred
Stanyforth, Col.
Straker, F.
Tanner, E. C.
Thornton, F. H.

Stock Prizes Committee.

Carr, Richardson (*Chairman*)
Northbrook, Earl of
Harlech, Lord
Burrell, Sir Merrik R.
Cotterell, Sir John
Greenall, Sir Gilbert
Hazlerigg, Sir A. G.
Ashton, T. W.
Behrens, Major Clive
Brocklebank, Rev. C. H.
Brown, Davis
Chapman, W. W.
Crutchley, Percy
Fenwick, E. Guy
Greaves, R. M.
Hobbs, Robert
Howkins, B.
Mansell, Alfred
Mathews, Ernest
Montgomery, A. M.
Myatt, John
Neilson, R. B.
Overman, Henry
Rea, G. G.
Sherwood, S. R.
Silcock, T. B.
Smith, Fred
Tanner, E. C.
Tindall, C. W.
Wickham-Boynton, T. L.
The Stewards of Live Stock

Judges Selection Committee.—*Same as Stock Prizes Committee.*

Implement Committee.

Stanyforth, Lt.-Col. (*Chairman*)
Aveling, T. L.
Bell, John
Burke, U. Roland
Courthope, Col. G. L.
Crutchley, Percy
Evens, John
Falconer, J.
Garrett, Col.
Greaves, R. M.
Harrison, W.
Howkins, B.
Luddington, J. L.
Middleton, C.
Myatt, John
Overman, Henry
Patterson, R. G.
Ransome, E. C.
Sample, C. H.
Sherwood, S. R.
Wheeler, Col.
The Steward of Implements

Showyard Works Committee.

Greenall, Sir Gilbert (*Chairman*)
Burrell, Sir Merrik R.
Hazlerigg, Sir A. G.
Ashton, T. W.
Aveling, T. L.
Bell, John
Burke, U. Roland
Carr, Richardson
Crutchley, Percy
Harrison, W.
Neilson, R. B.
Overman, Henry
Rea, G. G.
Sample, C. H.
Stanyforth, Lt.-Col.
Tindall, C. W.

Committee of Selection and General Purposes.

Parker, Hon. C. T. (*Chairman*)
The President
Harlech, Lord
Hazlerigg, Sir A. G.
Burke, U. Roland
Courthope, Col.
Greaves, R. M.

And the Chairman of each of the Standing Committees.

Dairy and Produce Committee.

Mathews, Ernest (*Chairman*)
Bledisloe, Lord
Fitzwalter, Lord
Parker, Hon. C. T.
Burrell, Sir Merrik R.
Ashton, T. W.
Carr, Richardson
Crutchley, Percy
Disbrowe-Wise, Col.
Evens, John
Everard, W. L.
Fenwick, E. Guy
Greaves, R. M.
Oliver-Bellasis, Capt R.
Overman, Henry
Silcock, T. B.
Smith, Fred
Somerville, Prof.
Wheeler, Col.
Whetham, C. D.
Williams, Prof. R. Stenhouse

Horticultural Committee.

Greenall, Sir G. (*Chairman*).
Hazlerigg, Sir A. G.

Research Committee.

Devonshire, Duke of (*Chairman*)
Bledisloe, Lord
Burrell, Sir Merrik R.
Adeane, C.
Burkitt, W.
Cornwallis, Col.
Evens, John
Greaves, R. M.
Hobbs, Robert
Luddington, J. L.
Mathews, Ernest
Miln, G. P.
Overman, Henry
Somerville, Prof. W.
Tomkinson, Major
Whetham, C. D.

General Chester Committee.

The Whole Council, with the following representatives of the Local Committee :—

The Mayor of Chester
Frost, Sir John M.
Barbour, Major Robert
Cockrill, Councillor C. P.
Kerr, Major Basil, D.S.C.
Lyon, Lt.-Col. Charles
Morris, Rowe
Wall, Alderman A.
Wickham, Ald. R. T.
Clark, Major H. Denton
Dickson, J. H.
(*Joint Hon. Secs.*)

Honorary Director.—Sir Gilbert Greenall, Bart., C.V.O.

Secretary.—T. B. Turner, 16 Bedford Square, W.C.1.

Editor of Journal—C. S. Orwin, M.A., *School of Rural Economy, Oxford.*
Consulting Chemist.—Dr. J. Augustus Voelcker, M.A., 1 *Tudor St., E.C.*4.
Consulting Veterinary Surgeon.—Prof. Sir John McFadyean, *Royal Veterinary College, Camden Town, N.W.*1.
Botanist.—Prof. Sir R. H. Biffen, F.R.S., *School of Agriculture, Cambridge.*
Zoologist.—Cecil Warburton, M.A., *School of Agriculture, Cambridge.*
Consulting Engineer.—F. S. Courtney, 25 *Victoria Street, Westminster, S.W.*1.
Surveyor.—Charles H. R. Naylor, *Smith's Bank Chambers, Derby.*
Publisher.—John Murray, 50a *Albemarle Street, W.*1.
Solicitors.—Garrard, Wolfe, Gaze & Clarke, 13 *Suffolk Street, S.W.*1.
Bankers.—Westminster Bank, 1 *St. James's Square, London, S.W.*1.

DISTRIBUTION OF GOVERNORS AND MEMBERS OF THE SOCIETY, AND OF ORDINARY MEMBERS OF THE COUNCIL.

Electoral District	Division	Number of Governors and Members	Number of Ordinary Members of Council	Ordinary Members of Council
A.	Bedfordshire	129	1	B. Howkins.
	Cheshire	671	3	G. P. Miln; R. B. Neilson; Major C. W. Tomkinson.
	Cornwall	110	1	Capt. G. H. Johnstone.
	Derbyshire	318	2	U. Roland Burke; Lt.-Col. H. E. D. Disbrowe-Wise.
	Dorset	114	1	A. Hiscock.
	Hampshire and Channel Islands	358	2	T. W. Ashton; J. Falconer.
	Hertfordshire	245	1	Richardson Carr.
	Lancashire and Isle of Man	443	2	W. Harrison; T. B. Silcock.
	Middlesex	101	1	A. W. Perkin.
	Monmouthshire	104	1	Col. Edward Curre.
	Norfolk	493	3	Davis Brown; Hubert Groom; Henry Overman.
	Northamptonshire	249	1	F. H. Thornton.
	Northumberland	563	3	G.G. Rea; C.H. Sample; F. Straker.
	Staffordshire	319	2	John Myatt; R. G. Patterson.
	Worcestershire	224	1	Col. E. V. V. Wheeler.
	Yorkshire, N.R.	299	2	Major Clive Behrens; J. R. Twentyman.
	Scotland	309	2	Robert Dickie; A. M. Montgomery.
		—5,049	—29	
B.	Buckinghamshire	187	1	B. J. Gates.
	Devon	203	1	Lord Mildmay of Flete.
	Durham	332	2	W. Burkitt; C. Middleton.
	Essex	320	2	Sir Walter Gilbey; Hon. E. G. Strutt.
	Herefordshire	186	1	Sir John R. G. Cotterell.
	Leicestershire	301	2	W. Lindsay Everard; Sir A. G. Hazlerigg.
	London	573	3	W. W. Chapman; F. P. Matthews; F. Hamlyn Price.
	Nottinghamshire	233	1	John Bell.
	Rutland	48	1	E. Guy Fenwick.
	Shropshire	406	2	Alfred Mansell; E. Craig Tanner.
	Suffolk	333	2	S. R. Sherwood; Fred Smith.
	Surrey	236	1	Major Dunbar Kelly.
	Wiltshire	214	1	D. Combes.
	Yorkshire, W.R.	377	2	Lt.-Col. G. R. Lane-Fox; C. Howard Taylor.
	South Wales	141	1	Col. C. Venables Llewelyn.
		—4,090	—23	
C.	Berkshire	207	1	Sir W. A. Mount.
	Cambridgeshire	321	2	Rev. C. H. Brocklebank; J. L. Luddington.
	Cumberland	199	1	Joseph Harris.
	Glamorgan	140	1	Hubert Alexander.
	Gloucestershire	332	2	Lord Biedisloe; H. D. Brocklehurst.
	Huntingdonshire	60	1	Sir Douglas Newton.
	Kent	452	2	T. L. Aveling; Lord Fitzwalter.
	Lincolnshire	446	2	John Evens; C. W. Tindall.
	Oxfordshire	219	1	Robert Hobbs.
	Somerset	200	1	Lord Strachie.
	Sussex	419	2	Sir Merrik R. Burrell; Col. G. L. Courthope.
	Warwickshire	279	1	Capt. R. Oliver-Bellasis.
	Westmorland	85	1	Jacob Wakefield.
	Yorkshire, E.R.	159	1	T. L. Wickham-Boynton.
	Ireland	86	1	Bertram H. Barton.
	North Wales	314	2	David Davies; Major E. J. W. Platt.
		—3,918	—22	
Foreign Countries		263		*Col. Frank Garrett. *E. C. Ransome.
Members with no Addresses		26	4	*Prof. W. Somerville. *C. Dampier Whetham.
Grand Totals		13,346	78	

* Nominated Members of Council.

TABLE SHOWING THE NUMBER OF GOVERNORS AND MEMBERS IN EACH YEAR FROM THE ESTABLISHMENT OF THE SOCIETY.

Year ending with Show of	President of the Year	Governors		Members			Total
		Life	Annual	Life	*Annual	Honorary	
1839	3rd Earl Spencer	—	—	—	—	—	1,100
1840	5th Duke of Richmond	86	189	146	2,434	5	2,860
1841	Mr. Philip Pusey	91	219	231	4,047	7	4,595
1842	Mr. Henry Handley	101	211	328	5,194	15	5,849
1843	4th Earl of Hardwicke	94	209	429	6,155	15	6,902
1844	3rd Earl Spencer	95	214	442	6,161	15	6,927
1845	5th Duke of Richmond	94	198	527	5,899	15	6,733
1846	1st Viscount Portman	92	201	554	6,105	19	6,971
1847	6th Earl of Egmont	91	195	607	5,478	20	6,391
1848	2nd Earl of Yarborough	93	186	648	5,387	21	6,335
1849	3rd Earl of Chichester	89	178	582	4,643	20	5,512
1850	4th Marquis of Downshire	90	169	627	4,356	19	5,261
1851	5th Duke of Richmond	91	162	674	4,175	19	5,121
1852	2nd Earl of Ducie.	93	156	711	4,002	19	4,981
1853	2nd Lord Ashburton	90	147	739	3,928	19	4,923
1854	Mr. Philip Pusey	88	146	771	4,152	20	5,177
1855	Mr. William Miles, M.P.	89	141	795	3,838	19	4,882
1856	1st Viscount Portman	85	139	839	3,896	20	4,979
1857	Viscount Ossington	83	137	896	3,933	19	5,068
1858	6th Lord Berners	81	133	904	4,010	18	5,146
1859	7th Duke of Marlborough	78	130	927	4,008	18	5,161
1860	5th Lord Walsingham	72	119	927	4,047	18	5,183
1861	3rd Earl of Powis	84	90	1,113	3,328	18	4,633
1862	H.R.H. The Prince Consort 1st Viscount Portman	83	97	1,151	3,475	17	4,823
1863	Viscount Eversley	80	88	1,263	3,735	17	5,183
1864	2nd Lord Feversham	78	45	1,343	4,013	17	5,496
1865	Sir E. C. Kerrison, Bart., M.P.	79	81	1,386	4,190	16	5,752
1866	1st Lord Tredegar	79	84	1,395	4,049	15	5,622
1867	Mr. H. S. Thompson	77	82	1,388	3,903	15	5,465
1868	6th Duke of Richmond	75	74	1,409	3,888	15	5,461
1869	H.R.H. The Prince of Wales, K.G.	75	73	1,417	3,864	17	5,446
1870	7th Duke of Devonshire	74	74	1,511	3,764	15	5,438
1871	6th Lord Vernon	72	74	1,589	3,896	17	5,648
1872	Sir W. W. Wynn, Bart., M.P.	71	73	1,655	3,953	14	5,768
1873	2nd Earl Cathcart	74	62	1,832	3,936	12	5,916
1874	Mr. Edward Holland	76	58	1,944	3,756	12	5,846
1875	1st Viscount Bridport	79	79	2,058	3,918	11	6,145
1876	2nd Lord Chesham	83	78	2,164	4,013	11	6,349
1877	Lord Skelmersdale	81	76	2,239	4,073	17	6,486
1878	Col. Kingscote, C.B., M.P.	81	72	2,328	4,130	26	6,637
1879	H.R.H. The Prince of Wales, K.G.	81	72	2,453	4,700	26	7,332
1880	9th Duke of Bedford	83	70	2,673	5,083	20	7,929
1881	Mr. William Wells	85	69	2,765	5,041	19	7,979
1882	Mr. John Dent Dent	82	71	2,849	5,059	19	8,080
1883	6th Duke of Richmond and Gordon	78	71	2,979	4,952	19	8,099
1884	Sir Brandreth Gibbs	72	72	3,203	5,408	21	8,776
1885	Sir M. Lopes, Bart., M.P.	71	69	3,356	5,619	20	9,135
1886	H.R.H. The Prince of Wales, K.G.	70	61	3,414	5,569	20	9,134
1887	Lord Egerton of Tatton	71	64	3,440	5,387	20	8,982
1888	Sir M. W. Ridley, Bart., M.P.	66	56	3,521	5,225	16	8,884
1889	HER MAJESTY QUEEN VICTORIA	73	58	3,567	7,153	15	10,866
1890	Lord Moreton	122	58	3,846	6,941	17	10,984
1891	2nd Earl of Ravensworth	117	60	3,811	6,921	19	10,928
1892	1st Earl of Feversham	111	69	3,784	7,066	20	11,050
1893	1st Duke of Westminster, K.G.	107	74	3,786	7,138	21	11,126
1894	8th Duke of Devonshire, K.G.	113	73	3,798	7,212	22	11,218
1895	Sir J. H. Thorold, Bart.	120	80	3,747	7,179	23	11,149
1896	Sir Walter Gilbey, Bart.	126	83	3,695	7,253	23	11,180
1897	H.R.H. The Duke of York, K.G.	126	83	3,705	7,285	24	11,223
1898	5th Earl Spencer, K.G.	121	79	3,687	7,182	25	11,094
1899	Earl of Coventry	116	75	3,656	7,009	23	10,879
1900	H.R.H. The Prince of Wales, K.G.	111	71	3,628	6,832	24	10,666
1901	3rd Earl Cawdor	102	70	3,564	6,338	27	10,033
1902	H.R.H. Prince Christian, K.G.	100	69	3,500	5,955	26	9,650
1903	H.R.H. The Prince of Wales, K.G.	99	62	3,439	5,771	27	9,398
1904	16th Earl of Derby, K.G.	96	68	3,375	5,906	32	9,477
1905	9th Lord Middleton	89	78	3,212	5,758	33	9,170
1906	Mr. F. S. W. Cornwallis	94	155	3,132	6,189	30	9,600
1907	Earl of Yarborough	91	174	3,076	6,299	29	9,669
1908	Duke of Devonshire	89	178	3,019	6,442	30	9,758
1909	7th Earl of Jersey, G.C.B.	91	177	2,951	6,696	31	9,946
1910	Sir Gilbert Greenall, Bart.	86	166	2,878	6,934	31	10,095
1911	HIS MAJESTY KING GEORGE V.	85	168	2,805	7,191	30	10,279
1912	9th Lord Middleton	85	170	2,741	7,283	30	10,309
1913	Earl of Northbrook	89	168	2,691	7,474	26	10,448
1914	Earl of Powis	89	173	2,626	7,629	28	10,545
1915	Duke of Portland, K.G.	88	184	2,517	7,313	28	10,130
1916	7th Duke of Richmond and Gordon, K.G.	83	185	2,427	7,526	27	10,248
1917	Mr. Charles Adeane, C.B.	93	210	2,412	8,214	26	10,955
1918	Hon. Cecil T. Parker	102	224	2,395	8,226	25	10,972
1919	Sir J. B. Bowen-Jones, Bart.	119	236	2,411	8,558	24	11,348
1920	H.R.H. The Prince of Wales, K.G.	129	256	2,402	9,208	25	12,020
1921	Mr. R. M. Greaves	137	275	2,374	10,098	24	12,908
1922	H.R.H. The Duke of York, K.G.	144	287	2,817	10,596	22	13,866
1923	Lt.-Col. E. W. Stanyforth	153	293	2,262	10,778	20	13,506
1924	Mr. Ernest Mathews, C.V.O.	159	289	2,201	10,676	21	13,346

STATEMENT[*] made to the Council by the Chairman of the Finance Committee, on presenting the Accounts for the year 1924.

Mr. Adeane said that last year the Society began with a balance carried forward of £3,368, and the income from all sources during 1924 was £19,926, giving a total of £23,295. The payments, which included an investment of £2,500 in Conversion Loan, amounted to £19,421, and the balance carried forward at the end of the year was £3,874.

With regard to the balance-sheet, the only matter to which he need refer—he thought that it was a satisfactory one—was the reserve fund. That now stood at £116,033. If the Members of the Council would refer to the sheet which dealt with the funds held by the Society upon trust, they would see that there was a fund held in trust that was left by the late Sir Walter Gilbey. That fund was very generously established by Sir Walter some years ago to start an Agricultural Lectureship at Cambridge. At the end of twenty-one years the capital sum was to fall into the absolute possession of the Society, the idea being that a part of it should be used for the redemption of the Harewood House debenture stock. As a matter of fact, when Harewood House was sold, twenty years ago, those debentures were extinguished. The Finance Committee recommended that the Council should continue to grant the interest on the money to the University of Cambridge to assist the University in maintaining the Lectureship. He hoped that the Council would agree to that course being adopted. The present value of the fund was £934.

The estimate of receipts and expenditure during the present year was as under :—

FORECAST OF ORDINARY RECEIPTS AND EXPENDITURE FOR 1925.
(Other than in respect of the Show.)

Prepared by direction of the Finance Committee on the basis of the recommendation of September 21, 1905, made by the Special Committee.

Actual figures for 1924.

£	*Receipts.*	£
11,809	From Subscriptions for 1925 of Governors and Members	11,809
279	From Interest on Daily Balances	250
5,058	From Interest on Investments	5,058
280	From Sales of Journals, Text Books, Pamphlets, etc.	250
214	Advertisements in Journal	210
503	Income Tax Repaid	—
29	Miscellaneous	—
217	N.D.D. Entry Fees, etc.	—
18,389		17,577

£	*Expenditure.*		£
3,246	Salary of Secretary and Official Staff		3,280
313	Pensions to Officials		313
1,010	Rent, Lighting, Cleaning, Wages, etc. (say)		1,000
720	Printing and Stationery		800
252	Postages and Telegrams		275
359	Miscellaneous		400
1,764	Journal		2,000
418	Chemical Department		420
250	Botanical Department		250
200	Zoological Department		200
403	Veterinary Department		403
100	Grant to Research Institute, University College, Reading		100
100	Consulting Engineer		100
245	Examinations for National Diploma (R.A.S.E. Share)		220
3,500	Amount set aside towards loss on Shows		3,500
12,880			13,261
	Exceptional Expenditure.		
2,000	Scientific Research (as required)		2,000
191	Painting and Repairs to Society's House		100
—	Repairs to Society's Furniture		150
28	Library Binding and Purchase of Books		100
1,039	Legal Charges (say)		400
56	Leaflets to Members		60
—	Trials of Sugar Beet Lifters		300
16,194			16,371
	Credit Balance:	£	
	Estimated Receipts	17,577	
	Estimated Expenditure	16,371	
2,195	Estimated Receipts over Expenditure		1,206

The accounts and estimates were adopted.

STATEMENT OF RECEIPTS AND EXPENDI-
JULY 1 TO

Corresponding figures for 1923. £	**Receipts.**		£ s. d.	£ s. d.
2,500	Subscription from the City of Leicester			2,000 0 0
3,416	Prizes given by Agricultural and Breed Societies and others .		2,028 10 0	
1,440	Prizes given by Leicester Local Committee		1,600 10 0	
				3,629 0 0
4,856				
121	*Contributions to Show Fund*			
	FEES FOR ENTRY OF IMPLEMENTS :—			
12,531	Implement Exhibitors' Payments for Shedding . . .		10,164 12 8	
313	Non-Members' Fees for Entry of Implements . . .		263 0 0	
156	Fees for Entry of "New Implements"		111 0 0	
				10,538 12 8
13000				
	FEES FOR ENTRY OF LIVE STOCK :—			
	By 4 Members' Entries @ 5*l.*		20 0 0	
5,193	1,661 Members' Entries @ 3*l.*		4,983 0 0	
4	3 Members' Entries @ 2*l.*		6 0 0	
2,577	1,500 Members' Entries @ 30*s.*		2,250 0 0	
337	416 Members' Entries @ 1*l.*		416 0 0	
48	53 Members' Entries @ 15*s.*		39 15 0	
15	56 Members' Entries @ 10*s.*		28 0 0	
27	102 Members' Entries @ 5*s.*		25 10 0	
73	Entrance Fees		13 2 0	
612	100 Non-Members' Entries @ 6*l.*		600 0 0	
126	75 Non-Members' Entries @ 3*l.*		225 0 0	
6	8 Non-Members' Entries @ 2*l.*		16 0 0	
5	11 Non-Members' Entries @ 1*l.*		11 0 0	
1	6 Entries @ 10*s.*		3 0 0	
				8,636 7 0
9,024				
	FEES FOR ENTRY OF POULTRY :—			
141	By Members :—618 Entries @ 5*s.*		154 10 0	
310	By Non-Members :—539 Entries @ 10*s.*		269 10 0	
2	Entrance fees		6 0 0	
				430 0 0
453				
	OTHER ENTRY FEES :—			
179	Produce		108 0 0	
68	*Rabbits*			
97	Horse-jumping Competitions		172 1 1	
26	Plantations Competition		21 5 6	
27	Orchard and Fruit Plantations Competition		37 10 0	
				338 16 7
397				
	CATALOGUE :—			
11	Extra Lines for Particulars of Implement Exhibits	18 9 0		
7	Woodcuts of "New Implements" . .	7 0 6		
1,079	Advertising in Catalogue	1,088 0 9		
36	Sales of Implement Section of Catalogue .	34 3 0		
2,253	Sales of Combined Catalogue	1,111 10 11		
57	Sales of Jumping Programme	49 8 0		
			2,308 12 2	
3,443				
30,351	Carried forward		£2,308 12 2	£25,572 16 3

TURE OF THE SHOW AT LEICESTER,

JULY 5, 1924.

Corresponding figures for 1923.	**Expenditure.**						
£	COST OF ERECTION OF SHOWYARD :—	£	s.	d.	£	s.	d.
2,721	Transferring Society's Permanent Buildings from Newcastle to Leicester (including taking down and re-erecting)	2,972	6	0			
1,703	Fencing round Showyard	1,415	5	2			
3,057	Implement Shedding	2,777	6	1			
8,279	Stock Shedding	8,489	16	2			
610	Poultry and Produce Sheds	490	8	0			
—	Experimental Wool Shed	112	1	2			
584	Dairy	562	5	1			
99	*Rabbit Shed*						
137	Fodder Shed and Office	119	0	0			
303	Education and Forestry	241	5	0			
1,198	Grand Stands and Large Ring	1,056	5	8			
1,321	Various Offices and Stands	967	18	10			
851	Painting Signs and fixing do., Fencing and Judging Rings	821	8	6			
71	Insurance	80	18	4			
54	Ironmongery	64	10	4			
3,860	Hire of Canvas	4,115	1	0			
1,500	*Provision for Renewal of Timber*						
1,905	General Labour and Horse Hire (including Society's Clerk of Works)	2,229	3	3			
44	Bee Shed	46	14	10			
43	Extra Entrance to Show	40	15	0			
87	Horse-Shoeing Shed	105	18	10			
28,437		26,708	7	3			
784	*Cost of Railway Carriage*						
40	Less 80 Flagpoles @ 10s.	40	0	0			
					26,668	7	3
27,613							
	SURVEYOR :—						
502	Salary, 500*l.*; Travelling Expenses to London, 31*l.* 10*s.*; Clerk, 10*l.* 10*s.*; Petty Expenses, 10*l.* 19*s.*				552	19	0
	PRINTING :—						
900	Printing of Prize Sheets, Entry Forms, Admission Orders, Circulars to Exhibitors, Prize Cards, Tickets and Miscellaneous	785	4	0			
28	Programmes for Members	36	0	3			
8	Plans of Showyard	11	19	3			
1,707	Printing of Catalogues	1,294	8	5			
316	Binding of Catalogues	325	17	2			
36	Carriage of Catalogues	38	5	7			
49	Printing Awards	74	0	0			
32	Programmes of Jumping Competitions	23	10	0			
					2,589	4	8
3,076							
	ADVERTISING :—						
179	Advertising Closing of Entries in Newspapers	162	11	11			
342	Advertising Show in Newspapers	415	5	6			
234	Bill Posting	524	0	3			
59	Printing of Posters	133	7	6			
8	Press Pamphlet	21	0	0			
					1,256	5	2
822							
	POSTAGE, CARRIAGE, &c. :—						
169	General Postage	156	14	9			
69	Postage of Badges to Members	69	2	8			
22	Carriage of Luggage	12	5	11	238	3	4
260							
	AMOUNT OF PRIZES AWARDED,						
11,768	including 3,629*l.* given by various Societies and Leicester Local Committee				12,308	5	0
	COST OF FORAGE FOR LIVE STOCK :—						
1,934	Hay, 423*l.* 11*s.* 11*d.*; Straw, 946*l.* 19*s.* 8*d.*; Green Food, 376*l.* 6*s.* 3*d.*; Commission and Travelling Expenses, 50*l.*; Extra Cartage and other expenses, 4*l.* 14*s.*				1,801	11	10
	JUDGES' FEES AND EXPENSES :—						
827	Judges of Miscellaneous Implements, 24*l.* 6*s.*; Horses, 67*l.* 0*s.* 8*d.*; Cattle, 172*l.* 19*s.* 2*d.*; Sheep, 165*l.* 0*s.* 10*d.*; Pigs, 73*l.* 0*s.* 4*d.*; Poultry, 25*l.* 16*s.* 10*d.*; Produce, 32*l.* 3*s.* 4*d.*; Luncheons, 82*l.* 10*s.*				642	17	2
71	Badges for Judges and other Officials				64	18	0
92	Rosettes				110	1	1
46,965	Carried forward				£46,232	12	6

Statement of Receipts and Expenditure

Receipts (*contd.*).

Corresponding figures for 1923. £		£	s.	d.	£	s.	d.
30,351	Brought forward	2,308	12	2	25,572	16	3
3443							
78	*Less* Commission on Sales	85	15	9			
3,365					2,222	16	5
	MISCELLANEOUS RECEIPTS :—						
1,512	Admission to Horticultural Show	780	6	3			
694	Garage	632	6	0			
148	Rent for Railway Offices	203	10	0			
60	Premium for Cloak Rooms	75	0	0			
130	Rent for Ministry of Agriculture Pavilion	130	0	0			
168	Advertisements in Stock Prize Sheet	209	11	8			
20	*Sale of Manure*						
—	Band Enclosure	21	0	3			
17	Miscellaneous	22	18	0			
19	Bath Chairs	10	17	6			
2,768					2,085	9	8
	ADMISSIONS TO SHOWYARD :—						
1,751	Tuesday, July 1, @ 10*s*.	1,127	10	0			
9,253	Wednesday, July 2, @ 5*s*.	3,984	11	6			
8,755	Thursday, July 3, @ 3*s*.	4,553	15	8			
6,281	Friday, July 4, @ 3*s*.	2,197	9	9			
3,926	Saturday, July 5 @ 2*s*.	1,556	15	11			
1,692	Season Tickets	221	9	0			
832	Day Tickets	740	7	0			
32,490					14,381	18	10
	ENTRANCES TO HORSE RING :—						
596	Wednesday, July 2	407	11	6			
458	Thursday, July 3	441	0	0			
347	Friday, July 4	201	10	0			
248	Saturday, July 5	102	9	0			
965	Tickets sold for Reserved Enclosure	611	8	11			
2,614					1,763	19	5
	SALES :—						
214	Sales of Produce at Dairy				176	17	9
650	Auction Sales in Showyard (Share of Commission)				610	18	11
27	*Outstanding receipts from Cambridge Show*						
	Dog Show :—Entry Fees, 1,260*l*. 12*s*. 9*d*.; Admissions to Show, 484*l*. 15*s*. 1*d*.; Sale of Catalogues, 70*l*. 14*s*. 9*d*.; Advertisements in Schedule, 55*l*. 14*s*. 4*d*.; Guarantee to Prizes, 65*l*. 6*s*. 8*d*.; Stand Rent, 30*l*.; Deposits Forfeited, 5*l*.				1,972	8	7
					48,787	0	10
	Debit Balance				5,976	5	9
£72,479					£54,763	6	7

Examined, audited, and found correct, this 26th day of Nov., 1924.

T. B. TURNER, Secretary.
DELOITTE, PLENDER, GRIFFITHS & CO., Accountants.

JONAS M. WEBB,
H. J. GREENWOOD,
NEWELL P. SQUAREY,
Auditors on behalf of the Society.

OF THE SHOW AT LEICESTER (*continued*).

Corresponding figures for 1923.	Expenditure (*contd.*).	£	s.	d.	£	s.	d.
£46,965	Brought forward				46,232	12	6
	GENERAL ADMINISTRATION :—						
190	*Stewards* :—Personal and Railway Expenses . . .	161	2	5			
264	*Assistant Stewards* :—Personal and Railway Expenses .	241	12	6			
817	*Official Staff* :—Extra Clerks, 230*l.* 12*s.* 6*d.*; Lodgings, 90*l.* 13*s.*; Maintenance of Clerks, 53*l.* 1*s.* 7*d.*; Travelling Expenses, 22*l.* 2*s.*; Secretary's Hotel and Travelling Expenses, 126*l.* 5*s.* 10*d.*	522	14	11			
238	*Finance Office* :—Finance Clerks, £25 5*s.*; Grand Stand Men, 82*l.* 0*s.* 8*d.*; Turnstile Men, 50*l.*; Bank Clerks, 60*l.* 5*s.*: Band Enclosure, 20*l.*; Refreshments, 11*l.* 6*s.* 6*d.* . .	248	17	2			
57	*Awards Office* :—Clerks, 28*l.* 16*s.* 8*d.*; Boys, 16*l.* . . .	44	16	8	1,219	3	8
1,566							
	General Management :—						
203	Foreman and Assistant Foremen	183	19	0			
60	Yardmen	77	17	1			
171	Door and Gate Keepers	172	5	6			
115	*Garage* :—Superintendent, Assistants and Expenses . .	152	9	8			
124	*Veterinary Department* :—Veterinary Inspectors . .	113	17	2			
161	*Engineering Department* :—Consulting Engineer and Assistant, 80*l.* 9*s.* 3*d.*; House, Maintenance and Travelling Expenses, 45*l.* 19*s.* 1*d.*	126	8	4			
1,203	*Police* :—Metropolitan Police, 981*l.* 1*s.* 8*d.*; Commissionaires, 24*l.* 16*s.* 8*d.*; Refreshments, 5*l.* 9*s.*.	1,011	7	4	1,838	4	1
2,037							
904	*Dairy* :—Staff, 241*l.* 1*s.* 1*d.*; Milk, 278*l.* 12*s.*; Ice, 28*l.* 15*s.*; Utensils, 174*l.* 1*s.* 5*d.*; Salt, 1*l.* 12*s.*; Engine, 14*l.* 18*s.* 2*d.*; Butter Tests, 28*l.* 4*s.* 3*d.*; Carriage, 3*l.* 12*s.* 10*d.*; Lodgings, 16*l.*; Labour, 12*l.* 2*s.* 9*d.*; Milk Analysis, 11*l.* 10*s.*; Butter and Cheese Boxes, 6*l.* 8*s.* 3*d.*; Refreshments, 24*l.* 5*s.* 9*d.*; Fuel, 6*l.* 9*s.* 7*d.*: Miscellaneous, 23*l.* 19*s.* 11*d.*	871	13	0			
6	Analysis of Cider	9	0	0			
129	*Poultry* :—Penning and Feeding, 71*l.* 9*s.* 6*d.*; Labour, 10*l.* 10*s.* 7*d.*; Carriage, 25*l*, 14*s.* 6*d.*; Miscellaneous, 4*l.* .	111	14	7			
29	*Rabbits*						
1,068					992	7	7
674	*Horticultural Show* :—Hire of Tents, 478*l.* 3*s.* 5*d.*; Judges, 22*l.* 16*s.* 9*d.*; Wages, 62*l.* 10*s.*; Medals, 70*l.* 10*s.* 6*d.*; Labour, 49*l.* 13*s.* 8*d.*; Carriage and Cartage, 29*l.* 0*s.* 10*d.* . (For Admissions see Miscellaneous Receipts.)				712	15	2
79	Plantations Competition				67	10	0
58	Orchard and Fruit Plantations Competition				52	7	7
	Dog Show :—Prizes, 1,406*l.* 5*s.* 6*d.*; Erection of Show, 332*l.* 11*s.* 10*d.*; Miscellaneous Printing, 120*l.* 4*s.* 6*d.*; Printing Catalogue, 112*l.* 10*s.* 10*d.*; Wages, 109*l.* 0*s.* 5*d.*; Judges, 90*l.* 16*s.* 3*d.*; Judges' Luncheons, 44*l.*; Benching and Feeding, 86*l.* 8*s.* 6*d.*; Show Licence, 21*l.* 10*s.*; Advertising, 11*l.* 14*s.* 6*d.*; Postage, 13*l.* 9*s.* 5*d.*; Lodgings, 8*l.* 8*s.*; Miscellaneous, 19*l.* 7*s.* 3*d.*				2,376	7	0
	GENERAL SHOWYARD EXPENSES :—						
—	Band	260	0	0			
280	Hire of Furniture	300	0	0			
9	Telephone Extension	49	12	10			
13	Telegraph Facilities	8	8	5			
88	Official Luncheons	85	1	8			
50	St. John Ambulance	50	0	0			
12	Billposting in Showyard	10	5	0			
10	Medals	12	8	6			
88	*Lino and Flags*						
40	Engraving Cups	70	6	3			
42	Plans and Maps	58	3	3			
11	*Ashes*						
80	Education and Forestry	42	1	0			
5	*Gas*						
8	Tan	19	7	9			
12	Sleepers	3	9	0			
—	Hire of Tents	7	10	0			
5	*Hire of Pony and Trap*						
10	Carriage	19	16	2			
11	Hire of Weighbridge	7	16	7			
23	Bath Chairs	18	2	6			
14	*Stable Lanterns*						
53	Miscellaneous	66	6	0			
864					1,088	14	11
—	Hire of Land for Garage				150	0	0
66	Outstanding accounts from Newcastle Show				33	4	1
53,377							
19,102	*Cr. Balance*						
72,479					£54,763	6	7
	Actual loss on the Leicester Show				£5,976	5	9
	Less—Contribution from the Ordinary Account to Show Fund . . .				3,500	0	0
					£2,476	5	9

Receipts.

Figures for 1923. £		£ s. d.	£ s. d.	£ s. d.
	CASH AT BANKERS AND IN HAND AT JANUARY 1, 1924:—			
442	Reserve Fund		132 17 9	
2,644	Current Account		3,080 9 5	
102	Cash in Hand		155 10 4	3,368 17 6
3,188				
	ANNUAL SUBSCRIPTIONS:—			
1,505	*Governors* for 1924	1,453 15 0		
10,154	*Members'* Subscriptions for 1924	10,075 11 8		
137	Subscriptions for 1924 (additional)	139 0 0		
81	Subscriptions for previous years	97 0 0		
	LIFE GOVERNORS AND MEMBERS:—			
44	Annual Contributions	43 16 0	11,809 2 8	
11,921				
	MISCELLANEOUS:—			
3814	Income from Investments	5,058 0 2		
365	Interest on Daily Balances	278 18 10		
477	Income Tax repaid	503 8 5		
100	Sales of Pamphlets, Farm Account Books, etc.	75 0 6		
—	Sales of Library Catalogues	2 12 0		
228	Sales of Text Books	108 18 10		
95	Sales of Journals	93 15 7		
236	Advertisements in Journal	214 4 2		
204	N.D.D.: Entry Fees and Sales of Papers	216 18 6		
41	Sundries	28 7 0	6,580 4 0	
15,560				
17,481	Total of Ordinary Receipts			18,389 6 8
	LIFE COMPOSITIONS:—			
1,113	Governors and Members		930 0 0	
50	Donation to Society's Fund		50 0 0	
69	Subscriptions for 1925		62 16 0	
420	Cash received for debts due at Dec. 31, 1923.		493 9 5	
1,652				
	Miscellaneous		0 10 0	1,536 15 5
	Rent, 12 Hanover Square	255 15 0		
	Less Rent paid	255 15 0		
£22,321				£23,294 19 7

T. B. TURNER, *Secretary.*

DELOITTE, PLENDER, GRIFFITHS & CO., *Accountants.*

Payments.

Figures for 1923. £		£ s. d.	£ s. d.	£ s. d.
	GENERAL ADMINISTRATION :—			
2,788	Salaries of Secretary and Official Staff (including clerical assistance)	3,245 12 3		
323	Pensions to Officials	312 12 3		
94	Legal Charges and Auditors' Fees	1,182 12 8		
937	Rent, Rates, Taxes, Insurance and House Expenses	1,010 2 9		
9	Purchase of Books	8 12 3		
737	Printing and Stationery	720 4 1		
308	Postage and Telegrams	251 13 10		
22	Carriage of Parcels and Travelling Expenses	32 0 0		
145	Advertising and Miscellaneous Office Expenses	140 18 8		
5,363	JOURNAL OF THE SOCIETY :—		6,904 8 9	
	Balance cost of Volume 84 :—			
967	Printing and Binding	1,139 17 4		
295	Postage	324 10 2		
229	Editing and Literary Contributions	297 10 0		
8	Illustrations	1 15 0		
1,499			1,763 12 6	
4	On account of printing Volume 85		8 16 10	
17	*Printing Pamphlets.*			
10	Advertising and Binding Farm Account Books		24 12 6	
	LABORATORY :—			
417	Salary and Petty Cash		418 3 2	
	OTHER SCIENTIFIC DEPARTMENTS :—			
250	Botanist's Salary	250 0 0		
200	Zoologist's Salary	200 0 0		
100	Consulting Engineer	100 0 0		
200	Grant to Royal Veterinary College	400 0 0		
100	Grant to Research Institute, Reading	100 0 0		
3	Medals for Proficiency in Cattle Pathology	2 19 6		
853	NATIONAL DIPLOMA IN AGRICULTURE :—		1,052 19 6	
367	Honoraria and Expenses of Examiners	334 0 2		
102	Travelling Expenses of Officials	80 13 1		
90	Hotel Expenses of Examiners and Officials	80 7 7		
91	Printing, Stationery and Postage	47 1 0		
27	Writing Diplomas	22 5 6		
9	Hire of Premises	8 18 6		
75	Salary for Assistant	75 0 0		
761		648 5 10		
649	*Less* Entry Fees and Sales of Examination Papers	515 17 0		
112		132 8 10		
56				
56	*Less* Highland and Agricultural Society's Moiety	66 4 5		
	NATIONAL DIPLOMA IN DAIRYING :—		66 4 5	
30	Hire of Premises, etc.	45 11 5		
99	Fees to Examiners	83 10 0		
44	Hotel and Travelling Expenses	38 5 9		
17	Printing and Postage	11 10 2		
190			178 17 4	
	For Entry Fees, and Sales of Exam. Papers, see contra.			
	EXTRA EXPENDITURE :—			
2,000	Grant to Research Fund	2,000 0 0		
70	Library : Binding and Purchase of Books	28 8 0		
448	Painting and Cleaning Council Chamber	190 19 0		
—	Leaflets to Members	56 8 8		
70	*Lighting Installations.*	—		
2,588			2,275 15 8	
3,500	Amount set aside towards Loss on Shows		3,500 0 0	
14,497	Total of Ordinary Payments			16,193 10 8
3,957	Purchase of £3,305 10*s.* 2*d.* Conversion Loan 3½ per cent. at 75⅝		2,500 0 0	
38				
460	Payment to Willesden District Council		328 15 8	
4,455	Net amount transferred from Reserve Fund to Show account to meet loss on Leicester Show		399 0 1	
				3,227 15 9
	BALANCES AT THE BANK AND IN HAND :—			
133	Reserve Fund		673 17 2	
3,080	Current Account		3,083 1 1	
156	Cash in Hand		116 14 11	
3,369				3,873 13 2
£22,321				£23,294 19 7

Examined, audited, and found correct, this 25th day of February, 1925.

HUBERT J. GREENWOOD, { *Auditor on behalf of the Society.*

Dr. **BALANCE SHEET,**

Figures for 1923.		£ s. d.	£ s. d.	£ s. d.
£	To SUNDRY CREDITORS—			
274	Sundry Creditors		267 14 3	
69	Subscriptions received in 1924 but belonging to 1925		62 16 0	
—	Show receipts received in 1924 but belonging to 1925		98 1 7	
				428 11 10
343				
1,241	*Renewal of Show Timber.*			
	To CAPITAL :—			
94,955	As at December 31, 1923		125,172 17 9	
	Less :			
	SHOW FUND—			
19,101	*Surplus*			
	Loss on Leicester Show	5,976 5 9		
3,500	Less Contribution from Ordinary Account .	3,500 0 0		
3,259	*New Entrances*			
25,860		2,476 5 9		
	Income Tax on Show surpluses	750 1 0	3,226 6 9	
			121,946 11 0	
—	Amount transferred from Timber Account . .		1,241 6 2	
1,113	Life Compositions received in 1924		930 0 0	
50	Donation towards the Society's Funds . . .		50 0 0	
86	Subscriptions for 1924 received in 1923		68 12 0	
375	Appreciation on Investments		2,528 5 4	
35	*Unclaimed Account*			
2,984	Excess of ordinary receipts over payments for the year 1924		2,195 16 0	
125,458			128,960 10 6	
	DEPRECIATIONS written off, viz. :—			
13	Fixtures	12 2 5		
45	Furniture	44 2 6		
7	Machinery	6 17 1		
120	Show Plant	455 7 1		
100	Lease of 16 Bedford Square	100 0 0	618 9 1	
285				128,342 1 5
125,173				
126,757				£128,770 13 3

T. B. TURNER, *Secretary.*

DELOITTE, PLENDER, GRIFFITHS & CO., *Accountants.*

DECEMBER 31, 1924. *Cr.*

Figures for 1923. £		£	s.	d.	£	s.	d.
	By RESERVE FUND—						
99,948	134,599*l.* 11*s.* 1*d.* Conversion Loan 3½ per cent. (1961) @ 77¾*	104,651	3	1			
500	500*l.* War Savings Certificates @ present value	500	0	0			
2,522	3,909*l.* 16*s.* Local Loans 3 per cent. (1912) @ 65⅞*	2,575	11	7			
2,258	2,840*l.* 13*s.* 6*d.* Metropolitan 3 per cent. Consolidated Stock (1941) @ 81*	2,300	18	11			
5,777	6,528*l.* 1*s.* 6*d.* Canadian 4 per cent. Stock (1940–1960) @ 92*	6,005	16	7			
111,005					116,033	10	2
	By LEASE OF 16 BEDFORD SQUARE	1,300	0	0			
1,300	*Less* Amount written off	100	0	0	1,200	0	0
	By FIXTURES—						
	Value at December 31, 1923	161	13	2			
162	*Less* Depreciation at 7½ per cent.	12	2	5	149	10	9
	By FURNITURE—						
	Value at December 31, 1923	441	5	7			
441	*Less* Depreciation at 10 per cent.	44	2	6			
					397	3	1
1,571	By PICTURES (500*l.*) and BOOKS (1,071*l.* 4*s.* 10*d.*)				1,571	4	10
	By MACHINERY—						
	Value at December 31, 1923	68	11	6			
69	*Less* Depreciation at 10 per cent.	6	17	1			
					61	14	5
	By SHOW PLANT—						
	Value at December 31, 1923	4,553	10	11			
	Less Depreciation at 10 per cent.	455	7	1			
		4,098	3	10			
4,554	Added during 1924	797	17	8			
					4,896	1	6
1,966	*Expenditure on Leicester Show.*						
653	By SUNDRY DEBTORS				488	13	9
	By CASH AT BANKERS AND IN HAND—						
	ORDINARY ACCOUNT—						
133	Reserve Fund	673	17	2			
3,080	Current Account	3,083	1	1			
156	Cash in Hand	116	14	11			
3,369		3,873	13	2			
	SHOW ACCOUNT—						
467	Current Account	99	1	7			
1,200	*On Deposit*						
1,667					3,972	14	9
5,036							
126,757					£128,770	13	3

* Market value at 31 Dec. 1924.

Examined, audited, and found correct, this 25th day of February, 1925.

HUBERT J. GREENWOOD, { *Auditor on behalf of the Society.*

Royal Agricultural Society of England.

RESEARCH COMMITTEE.

RECEIPTS AND PAYMENTS FOR YEAR 1924.

Receipts.

	£	s.	d.
To Cash at Bankers, Jan. 1st, 1924	1,783	2	3
,, Grant from Society's Funds	2,000	0	0
,, Balance of Grant to East Suffolk Education Committee for Silage Experiments	25	12	6
,, Cash unexpended in connection with Pig Feeding Experiments conducted at Harper Adams Agricultural College	104	14	5
	£3,913	9	2

Payments.

	£	s.	d.
By Grant to National Institute for Research in Dairying in connection with experiments on the drying of Whey	100	0	0
,, Balance of Grant to East Suffolk Education Committee for Silage Experiments	100	0	0
,, Grant to the National Institute of Agricultural Botany in connection with Yield Trial of Oats	685	0	0
,, Grant to the Rothamsted Experimental Station in connection with Green Manuring and Inoculation of Lucerne Seed Experiments	400	0	0
,, Grant to the Norfolk Agricultural Station for Cereal Experiments	500	0	0
,, Grant to National Institute for Research in Dairying for experiments in Lucerne	50	0	0
,, Grant to Leicester County Council in connection with Grassland Experiments	100	0	0
,, Grant to Norfolk Agricultural Station for Bullock feeding experiments	155	0	0
,, Gold Medal for Agricultural Research	18	11	0
,, Travelling Expenses	14	11	4
,, Miscellaneous Expenses	44	19	4
,, Balance at Bankers, Dec. 31, 1924	1,745	7	6
	£3,913	9	2

Examined, audited, and found correct, this 25th day of February, 1925.

T. B. TURNER, *Secretary*.

DELOITTE, PLENDER, GRIFFITHS & CO., *Accountants*.

HUBERT J. GREENWOOD, *Auditor on behalf of the Society*.

Royal Agricultural Society of England.

STATEMENT OF FUNDS HELD BY THE SOCIETY IN TRUST OR WHICH ARE NOT CONSIDERED AVAILABLE FOR GENERAL PURPOSES, DECEMBER 31, 1924.

	£ s. d.	£ s. d.	£ s. d.
To Hills' Bequest for Pot-culture Experiments			9,000 0 0
Less: Depreciation of Consols at time of conversion		3,582 7 11	
„ Cost of conversion		134 14 7	
			3,717 2 6
			5,282 17 6
To Fund provided by the late Sir Walter Gilbey for Endowment of Lectureship at Cambridge when after a certain date any balance on this account will become the property of the Society			1,191 5 3
			£1,191 5 3
To Superannuation and Insurance Fund:—			
Amount set aside in accordance with declaration of Trust of July 26, 1911		9,171 5 0	
Less: Depreciation of Consols at time of conversion	1,837 18 4		
„ Cost of conversion	256 3 0		
		2,094 1 4	
			7,077 3 8
Add: Purchase of 1,367*l.* 14*s.* 9*d.* 5% War Loan at cost			1,167 0 0
			8,244 3 8
Income Tax payable on War Stock			198 9 0
Accumulation to December 31, 1924			970 17 0
			£9,413 9 8

	£ s. d.	£ s. d.
By 5,560*l.* 17*s.* 8*d.* 5% War Stock (1929–1947) received under the conversion rights for 5,282*l.* 17*s.* 6*d.* 4½% War Stock (*Value on December* 31, 1924, at 101½ = 5,644*l.* 5*s.* 11*d.*)		5,282 17 6
		5,282 17 6
By 1,140*l.* Metropolitan Water A Stock at cost (*Value on December* 31, 1924, at 65 = 741*l.*)		998 1 0
By amount included in the Society's Sundry Creditors' Account:—		
Fund uninvested	1 19 0	
Accumulated income	191 5 3	
		193 4 3
		£1,191 5 3
By Investments in names of Trustees of Superannuation and Insurance Funds, viz.:—		
8,817*l.* 7*s.* 1*d.* 5% War Stock (1929–1947) at cost (*Value on December* 31, 1924, at 101½ = 8,949*l.* 12*s.* 3*d.*)		8,244 3 8
443*l.* 3*s.* 11*d.* West Australian 3½% Stock (1935–1955) at cost (*Value on December* 31, 1924, at 76½ = 339*l.* 0*s.* 10*d.*)		359 17 4
342*l.* 13*s.* 8*d.* Queensland 3½% Stock (1950–1970) at cost (*Value on December* 31, 1924, at 73¾ = 252*l.* 14*s.* 7*d.*)		264 15 6
Cash at Bank		544 13 2
		£9,413 9 8

Examined, audited, and found correct, this 25th day of February, 1925.

T. B. TURNER, *Secretary.*
DELOITTE, PLENDER, GRIFFITHS & CO., *Accountants.*

HUBERT J. GREENWOOD, *Auditor on behalf of the Society.*

[Copies of the full Report of any of the Council Meetings held during the year 1924 may be obtained on application to the Secretary, at 16 Bedford Square, London, W.C.1.]

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

Minutes of the Council.

WEDNESDAY, FEBRUARY 6, 1924.

Mr. ERNEST MATHEWS, C.V.O. (President), in the Chair.

Before commencing the ordinary business of the Council, the PRESIDENT referred, with deep regret, to the passing of their late colleague, Mr. W. Fitzherbert-Brockholes, who joined the Society as a member in 1872. He had been elected as one of the representatives of Lancashire in 1916, and had continued as a member of the Council until the end of last year. He had, in fact, been present at their last Council meeting. As an agricturist he had been prominently associated with the Central Chamber of Agriculture, and the National Farmers' Union, and had been one of the founders of the Lancashire and South Westmorland Farmers' Association. The President felt sure that it would be their wish that he should convey an expression of the Council's sympathy to the eldest surviving son of Mr. Fitzherbert-Brockholes in the loss he had sustained.

Another well-known Governor whose passing they all deplored, and who, two years ago, had been an energetic Member of Council, was the late Mr. Norris Midwood. He had been a member of the Council from 1910 until 1922, when he had been compelled to resign owing to ill-health. In spite of his resignation from the Council he had continued to take a very close interest in the affairs of the Society. As local honorary treasurer in connection with the visit to Manchester in 1916, Mr. Midwood did most useful work which considerably helped to ensure the success of a Royal Show held during the difficult period of war time. He had also been an active worker for the Agricultural Relief of Allies Committee. Every one had admired Mr. Midwood's fearlessness and his sterling worth. A letter of condolence had already been sent to Mrs. Midwood, but he felt sure the Council would, as a whole, desire an expression of sympathy to go from that meeting to the widow and family of the deceased.

Six new Governors and 107 new members were elected.

The Report of the FINANCE Committee having been presented, Mr. ADEANE said the Council would have heard with regret that the appeal made to the Special Commissioners of Income Tax against taxation of show surpluses had been unsuccessful. The Commissioners had not given any reasons for their decision, but the Society's counsel, Sir Leslie Scott, K.C., had asked them to state a case for the consideration of the Court. The Committee now asked that the Council should leave it to the Sub-Committee to decide what future action should be taken in the matter. The Report of the Finance Committee was adopted.

Lord BLEDISLOE, in presenting the JOURNAL Committee's report, said that the Council would, he felt sure, desire to confirm the expression of deep regret which that report contained at the death of the distinguished Scottish agriculturist, Dr. Charles Douglas, who passed away a few days ago. Not only had Dr. Douglas been a tower of strength on the joint Examination Board of the Royal and Highland Societies, but probably it would be no exaggeration to say that he was the most enlightened agriculturist in Scotland and the greatest pioneer of agricultural progress.

The Report of the VETERINARY Committee was presented, including the following resolutions:—

> "That the Council of the Royal Agricultural Society is strongly of opinion that legislation is urgently needed providing that there shall be one authority only for the control of animal diseases in each geographical county, which should be a Joint Animal Diseases Committee representing the County and Borough Councils within the boundaries of such county."
>
> "That in view of the fact that the unloading of live stock during railway transit for purposes of rest, watering, and feeding is conducive to the formation of centres for the transmission and dissemination of diseases, the Council of the Royal Agricultural Society strongly urges that steps should be taken by the railway companies to expedite such transit in order that the necessity for unloading, if not entirely obviated, may be diminished as far as possible."

Lord STRACHIE then moved, as an addition to the report of the Veterinary Committee:

"That the Minister of Agriculture be requested either to prohibit the landing in Great Britain of hay or straw for packing goods coming from abroad or to provide that all such packing shall be burnt at the port of landing."

He reminded the Council that this question had been considered by two Departmental Committees, and they had both reported in favour of this recommendation. The Ministry of Agriculture were evidently alive to the danger, for they had circularised farmers advising them to burn hay and straw used for packing directly goods had been unpacked. Other countries had found no difficulty in adopting the measures he proposed. America would not allow the importation of any goods packed in hay or straw, and they probably had taken warning from the terrible outbreak of foot-and-mouth disease they had had there some years ago. He believed that it was not only safer, but even cheaper, to send goods packed in wood-wool. As regards the practice of burning hay and straw used in packing at the port of landing, that was done in the island of Jersey. His Lordship referred to a case, concerning the island of Sark, where foot-and-mouth disease had been traced to packing material introduced from the Continent and afterwards used on a farm. From February 7th the Irish Free State were prohibiting the use of hay and straw as packing material for imported goods. It seemed to him that they in Great Britain should try by every possible means to prevent infection being brought into the country. The Government were setting up a small Committee to see what action could be taken, and he thought it would be useful if the Council would pass this addition to the Veterinary Committee's report.

Mr. MANSELL seconded the resolution.

Mr. R. G. PATTERSON also supported the motion. As one coming from an area where there had been such a serious outbreak of foot-and-mouth disease, he realised the importance of this matter, perhaps, more than some did who lived in districts that had escaped or had only had a few outbreaks. Their object should be to prevent the use of straw or fodder of any description for packing goods sent here. It was quite easy to procure wood-wool for the purpose. To show the ease with which contamination could be conveyed by straw, he mentioned a case in connection with an outbreak close to his own farm at farm buildings that lay some considerable distance away from any public thoroughfare. When enquiries were made as to possible sources of infection it had been found that certain fat cattle from this farm had been sent to a slaughterhouse and, in unloading the animals some straw had been dragged from the slaughterhouse, and for some reason that straw had been thrown into the float and taken back to the farm, where it had been used for bedding for some calves. Within a week these calves had foot-and-mouth disease.

Mr. MANSELL, referring to the proposal that there should be one authority only in a county for the control of animal diseases, said he happened to know that the Veterinary Department of the Ministry of Agriculture would welcome this alteration. With regard to the practice in connection with the " Standstill Order " on the report of a suspected case of foot-and-mouth disease, he was giving away no secret when he told them that he knew that when foot-and-mouth disease had been diagnosed in an area in Cheshire by a local veterinary surgeon a standstill order was not put in operation. Thousands of sheep had gone from that area, and had thus proved one of the greatest sources of contamination throughout the whole of Cheshire. The standstill order should operate at once on a suspected case being reported, and he believed that if there were only one controlling body in a county it would much facilitate the matter.

With regard to sheep scab, the increasing number of outbreaks was very disconcerting. The public appeared to have forgotten the new arrangement which would come into force this year, and he thought the Society should communicate with the Ministry of Agriculture suggesting that they should notify all local authorities of the fact that in July this year an Order would come into operation which placed the onus on the sheep-owner of getting rid of scab.

Lord MILDMAY OF FLETE, on the question of the suggested unification of authorities in a county, said he did not like to use the word scandal, but he thought it was almost a scandal that this matter, which had been the subject of one of the most important recommendations of the Departmental Committee on Foot-and-Mouth Disease, had not yet been given effect to. He had himself been to the Ministry on four different occasions, and every time he had been given a different view on the question as to whether legislation was or was not necessary to deal with the matter. The trouble was probably due to the fact that more than one department was concerned, and that there had not been enough push and drive to force consideration of this matter. He hoped, however, that the matter would not be neglected any longer, but that it would be dealt with at once.

The report of the VETERINARY Committee, with the proposed addition, was then adopted.

A Report was received and adopted from the Sub-Committee appointed on December 12th, 1923, to go into details concerning the principle for conferring medals and certificates for long service and skilled labour through the County Societies. The Sub-Committee recommended—

(1) That for the present year the area should comprise Leicestershire, Rutland, Warwickshire and Berkshire.

(2) That the County Agricultural Societies concerned should be asked to co-operate with the R.A.S.E. in the working of the scheme.

(3) That certificates for long service be offered by the Society to farm servants, male or female, having an approved service of not less than thirty years (*a*) with one employer on the same or different holdings (*b*) on the same holding with different employers; and that, in addition, the following numbers of bronze medals be offered (also through the County Societies) in the counties mentioned to the farm servants with the longest service:—Leicester, five medals; Warwick, six medals, Rutland, one medal; Berkshire, five medals.

Gardeners, grooms and gamekeepers should not be eligible for these awards.

(4) That applicants for certificates and medals should be required to fill up a form with particulars of service, attached to which should be forms of certificate to be signed by the employer and a member of the Society. These forms, when filled up, should be forwarded by the applicants to the Secretary of the County Agricultural Society, who should be asked to confirm the accuracy of the statements made.

(5) That four silver medals, four bronze medals, and certificates be offered in each of the four selected counties, through the County Agricul-

tural Societies, for (*a*) ploughing, (*b*) hedging, (*c*) rick building, (*d*) thatching.

The Committee further recommended that the arrangements for carrying these proposals into effect be referred to the Stock Prizes Committee.

Regarding some proposals which had been before the Committee of Selection, Sir **DOUGLAS NEWTON** asked whether it was not possible for the Society to do more to stimulate interest in fruit and vegetable cultivation. He would like to suggest to the Committee that it might be possible to institute fruit exhibits and perhaps set up model plots where a layout of a typical fruit garden could be shown and where demonstrations of pruning could be given. If it were possible to do anything in this matter, he thought it would be of great advantage to many struggling horticulturists.

The **PRESIDENT** promised that the matter should receive attention.

Sir **ARTHUR HAZLERIGG** said he thought this matter ought to receive the attention of the Botanical and Zoological Committee, of which Sir Douglas Newton was a member.

A Report from the Research Committee was also adopted, including recommendations that in the regulations governing the offer of the Society's Gold Medal for Agricultural Research the age limit be omitted, and that previous publication of an essay should render a competitor ineligible.

On the motion of the **PRESIDENT**, seconded by the Hon. **CECIL PARKER**, it was resolved :—

1. " That the following additional Bye-laws be and the same are hereby enacted to follow after Bye-law 45 :—

46. A motion or amendment once made and seconded shall not be withdrawn without the consent of the Council.

47. (a) Every amendment shall be relevant to the motion on which it is moved.

(b) Whenever an amendment upon an original motion has been moved and seconded, no second or subsequent amendment shall be moved until the first amendment shall have been disposed of, but notice of any number of amendments may be given.

(c) An amendment shall be either :—

1. To leave out words.
2. To leave out words and insert or add words.
3. To insert or add words.

(d) If an amendment be rejected, other amendments may be moved on the original motion. If an amendment be carried, the motion amended shall take the place of the original motion, and shall become the question upon which any further amendment may be moved.

48. A member may, at the conclusion of the speech of any other member, or on the conclusion of any business, move that the Council do now adjourn, provided that :—

(a) The mover may speak for not more than five minutes, but the seconder shall not speak beyond formally seconding. The Chairman of the Committee primarily concerned in the matter raised on the motion for adjournment shall be entitled to reply, provided that if, in the opinion of the President, or other Chairman, the matter does not primarily concern a particular Committee, he may nominate a member to reply. Only one speech, not exceeding five minutes in length, may be made in reply, and no further debate shall be allowed.

(b) The Chairman may at any time after a member rises to move the adjournment, ascertain whether the motion has the support of ten other members present, who shall signify their support by rising in their places ; and if less than ten other members rise in their place, the motion for adjournment shall be considered as dropped.

(c) On the resolution for adjournment being carried, the question (if any) under debate when the motion for adjournment was made shall stand adjourned to the next meeting.

(d) At the same sitting no one member may move or second more than one motion for the adjournment of the Council.

(e) A second motion for the adjournment of the Council shall not be made within half an hour unless in the opinion of the Chairman the course of business justifies such motion. A motion dropped under section (b) of this Bye-law shall be deemed for the purposes of this section to have been not made.

49. (a) Any member of the Council may, at the conclusion of the speech of any other member, move that the debate be adjourned. Such a motion must be seconded, but it need not be reduced to writing. The mover may speak for not more than five minutes, but the seconder shall not be permitted to speak beyond formally seconding it. Upon such a motion being made, the mover of the question under debate may (without prejudice to his ultimate right of reply if the motion be not carried) be heard in reply for five minutes, after which the question shall be put without any further debate.

(b) If the motion be carried, the discussion shall be resumed at the next meeting of the Council, and the Council shall proceed to the next business on the paper.
(c) On resuming an adjourned debate the member who moved its adjournment shall be entitled to speak first.
(d) A second motion for the adjournment of the same debate shall not be made within one half-hour.
(e) At the same sitting no one member shall move or second more than one motion for adjournment of the same debate."

2. "That the following addition be made to the Bye-law now numbered 47, viz. :—
   (c) During the same debate, a second motion that the Council do proceed to the next business shall not be made within one half-hour unless it be moved by the Chairman."
3. "That the existing Bye-laws numbered 46 onwards be renumbered to follow consecutively after the new Bye-law numbered 49, and that the new Bye-laws be printed together with the other Bye-laws of the Society."

Mr. DAVIS BROWN then moved the following resolution standing in his name on the agenda :—

> "To amend the Resolution of the Council with reference to the appointment of Judges at the Annual Shows of the Society, approved by the Council on November 3rd, 1920, by the addition of the following words at the end of the second and final paragraph of the same, viz. : 'and they further recommend that in the Sheep Section two Judges shall be appointed for those breeds which show an average of 30 entries for the last five years.' "

This was seconded by Mr. MANSELL.

Thereupon Mr. ADEANE proposed an amendment to the effect "That Mr. Davis Brown's resolution be referred to the Stock Prizes Sub-Committee." This was seconded by the Hon. CECIL PARKER, and was put to the meeting after some further discussion, in which Mr. MIDDLETON, SIR GILBERT GREENALL, the PRESIDENT, Mr. DAVIS BROWN and Mr. S. R. SHERWOOD took part. On a show of hands, sixteen voted for the amendment. The original resolution was then put, fourteen voting for this. The amendment was therefore declared to be carried by a majority of two.

The PRESIDENT said that the next business was the consideration of suggestions made at the annual general meeting in December last. The first one, made by Mr. Quested, was with regard to the reduction of entry fees. No action could be taken on this matter, as the prize sheet for the Leicester Show had already been issued Regarding the provision of seats round the bandstand, as to which Sir Douglas Newton had made a suggestion, any gentleman who remembered the show when they had had a band knew that there was a large bandstand with plenty of seats round it. As to the third suggestion, the Council would have heard the recommendation of the Committee of Selection and General Purposes, that Colonel Garrett and Mr. E. C. Ransome be appointed Members of Council as representing agricultural implement manufacturers.

On a motion from the Chair the seal of the Society was affixed to an agreement in connection with the Leicester Show.

WEDNESDAY, MARCH 5, 1924.

Mr. ERNEST MATHEWS, C.V.O. (President) in the Chair.

Two new Governors and 112 new members were elected.

Colonel WHEELER, in presenting the Botanical and Zoological Committee's report, called attention to the paragraph with regard to a suggestion made by Sir Douglas Newton. The Committee felt that a demonstration such as that proposed would be a valuable one, and, if the Council approved the Committee's recommendation, it was intended to approach some good nurserymen and ask them to undertake the preparation of a plot in the showyard at Chester in 1925.

In presenting the Report of the VETERINARY Committee, Lord NORTH

BROOK called attention to the fact that the Society had not been asked to nominate a Member to serve on the newly-constituted Departmental Committee appointed to enquire into recent outbreaks of foot-and-mouth disease. The Ministry of Agriculture had been communicated with on the matter, but the reply that had been received afforded no explanation as to why the Society had been left out. His Lordship had had a conversation over the telephone with the Permanent Secretary of the Ministry, and he proposed to follow that up with a letter on the subject.

Lord BLEDISLOE reminded the Council that Mr. CARR and himself had sat on a departmental committee on foot-and-mouth disease appointed some twelve years ago, and in the forefront of their report that departmental committee had placed a recommendation that all hay and straw used for packing imported merchandise should be destroyed, and that wood-wool or a similar substance should be substituted. He could not help feeling that the Ministry had displayed a lack of courage in this matter. If only they would take their courage in both hands, as Lord Long had done over rabies some years ago, he thought they might more speedily get to the end of their troubles.

Mr. COMBES questioned whether the disinfection of railway trucks was properly carried out. The Wiltshire Diseases of Animals Committee, he said, had had two most glaring instances before them, where cattle had arrived at their destination and been certified as suffering from foot-and-mouth disease, but enquiries and examination at the source from which these cattle came had failed to discover any infection whatever. The Wiltshire Diseases of Animals Committee had no doubt whatever that the contamination of these animals occurred in the railway trucks during transit, and he asked the Veterinary Committee to consider that point.

Sir DOUGLAS NEWTON, on the question of the Society's representation on the newly-constituted Departmental Committee, said he felt that the fact that they had no representative on that Committee indicated a weakness in their organisation in this respect. He suggested that the Council should consider the desirability of setting up a Parliamentary committee or some other committee that could get into touch with members in the House of Commons. He was fully aware of the Society's rules as to its mixing up with politics, but from time to time matters of agricultural interest which were in no way political arose, and the Society suffered through lack of liaison between members of the Council and members of Parliament

Lord NORTHBROOK, referring to what Lord BLEDISLOE had stated, said that he did not share his lordship's surprise that the recommendations of the Departmental Committee twelve years ago had met the usual fate of such recommendations. The question raised by Mr. Combes regarding the disinfection of cattle trucks would be further considered by the Veterinary Committee. His lordship did not know how far it would be possible for the Council to maintain liaison with the House of Commons. The Council had several members in the House, including Sir Douglas Newton, and he was sure that they might trust him to look after the Society's interests.

The report of the Veterinary Committee was then adopted.

Lord NORTHBROOK suggested that, in the event of the Ministry agreeing that the Society should nominate a member to serve on the Departmental Committee, Mr. Mansell should again be asked to represent them. This was agreed to.

Colonel STANYFORTH stated that on the previous day the Implement Committee had had the advantage of the presence of Mr. Orwin, from Oxford, and he had told them that, although the new Institute of Engineering had not yet started work, it would do so within a short time. Mr. Orwin had held out very great hopes that the Institute would hold trials at

Oxford, probably of a non-competitive type. Of course, nothing could be done this year, but he, Colonel Stanyforth, thought that the Institute might be of great service in future. The Committee it would be remembered had asked for suggestions as to any trials of implements that could be undertaken by the Society, and Colonel Courthope had suggested that as there was a good deal more land now devoted to the growing of sugar beet, the Society might usefully hold a trial of sugar beet lifters. Therefore the Committee proposed that such a trial should be held next year confined to British manufacturers.

Lord BLEDISLOE, in moving the adoption of the RESEARCH Committee's report, said there were two matters to which he desired to refer. He understood that Major Tomkinson had been recently elected to the Council to represent Cheshire, and his lordship would like to recommend to the Selection Committee that Major Tomkinson be appointed as a member of the Research Committee. The other matter was with regard to the issue of "Occasional Notes." The Research Committee were in general agreement with the proposal that it might be advisable to restart the circulation of these notes, more particularly because there was likely to be a good deal of very interesting matter on the research work of the Society which would not find its way into the JOURNAL. He had found out that the cost had varied from £142 to £206 during the period from 1917 to 1920, when these notes had been published, and he desired to move that this matter be referred to the Finance Committee for their consideration.

This proposal was adopted.

WEDNESDAY, APRIL 2, 1924.

Mr. ERNEST MATHEWS, C.V.O. (President), in the Chair.

Before commencing the ordinary business, the PRESIDENT said it was his sad duty to refer to the death of their late colleague on the Council, Mr. A. P. Turner, of Hereford, who died recently at the age of seventy-one. Mr. Turner had, as had his forefathers, been connected with the breeding of Hereford cattle, and had acted as a judge of that breed not only in this country, but in the United States, the Argentine and Uruguay. He had been a member of the Council since 1904, representing Herefordshire, and had been present at their last meeting. His knowledge of Hereford cattle and the assistance he had rendered to the Stock Prizes Committee had been invaluable. He had also served upon the Chemical Committee of the Society. Every one who knew the late Mr. Turner, or who had been brought in contact with him, had admired his sound judgment and quiet and modest manner. The PRESIDENT was sure it would be their wish that he should send, in the name of the Council, an official letter of condolence to Mr. Turner's relatives, and he would ask members of Council to signify their sympathy and regret by rising in their seats.

One new Governor and 88 new Members were elected.

Lord MILDMAY OF FLETE said that, before the report of the VETERINARY Committee was put to the meeting, he would like, as having been present with their President at the Conference on March 12th, to testify to the anxiety of Sir Norman Hill, as representing shipping interests, to meet their views. He felt sure that the regulations that were to be introduced in the near future would absolutely prevent any recurrence of the state of affairs as in the case of s.s. *Hartington* last year.

He would also like to add a few words about the Committee which had been appointed to undertake research with regard to foot-and-mouth disease. A good many newspapers had been asking whether progress was likely to be made in this direction. He thought most decidedly yes, because there was a good deal of affinity between human and animal ills. He was one of three lay members of the Medical Research Council, and had taken great interest in what was going on. He was not technically informed, but he had listened with great interest to that Council's scientific advisers. The Research Council had got a farm at Mill Hill, where they had built kennels with the assistance of *The Field* Fund to enquire into the causes and possible prevention of Distemper. Those present might say, "What has that to do with foot-and-mouth disease?" His reply was that it had a considerable amount to do with it. Why had they taken such an interest in distemper? It was because it had been ascertained that the agency causing this disease was closely akin to that which was responsible for influenza in man. It was due to a filter-passing organism of ultra-microscopically small dimensions, and, more than this, organisms of this filter-passing kind were responsible for a whole group of diseases in man, including smallpox and scarlet fever, and in animals diseases such as rabies. And he was certain that the organisms causing foot-and-mouth disease belonged to the same group as that causing swine fever. Their research workers had not yet discovered these organisms, but they were pursuing them hard, and he held the opinion that they were similar to the organisms responsible for dog's distemper. This investigation might turn a whole flood of light upon diseases such as he had enumerated, and it was only lack of study in the case of these filter-passing organisms that had delayed advance in the knowledge of foot-and-mouth disease and swine fever. He believed that in the future they would see important developments in connection with this matter. He knew they were getting ahead, but it was a point of honour with these scientific workers to exercise severe restraint, never to boast, and never to say anything to the Press until they had made a definite step forward. But, having made that definite step forward, they placed the results of their research unreservedly at the disposal of other workers and the public. They did not seek to make money by their work. From what he had seen at the Research Council's Farm, he felt sure that substantial progress was being made. As to the new Foot-and-Mouth Committee, that body included two of the most eminent research workers in the distemper enquiry, and that showed how interdependent were the various branches of research work. He spoke with the greatest deference to those who had real knowledge and with the greatest deference to Sir John McFadyean, for his own terms might be all wrong; but he was heartily glad that this Scientific Committee, composed of members from both the medical and the veterinary professions, had been set up, for there was much to be gained by the one from the other.

Mr. F. H. THORNTON pointed out that the statistics given in the report with regard to foot-and-mouth disease did not bring matters right up to date. Whereas the report stated that there had been 34 outbreaks in Northamptonshire and 7 in Leicestershire, he believed it was the fact that, largely owing to the efficient work of their regional officer in Northampton, there had been no cases there for the last ten days. He was, however, sorry to say that in Leicestershire on Friday or Saturday last there had been 6 further outbreaks. With regard to what might be done, he believed that one of the most important things was complete isolation. He had seen farms abroad which had been placarded with a notice, "No admission except on business," in Dutch or French, and he would like to see affixed to gates in all places in this country where there were outbreaks large placards containing a similar notice. It would make people more cautious about going into infected premises. He believed that human beings were often carriers of infection.

Lord BLEDISLOE, referring to the quite admirable and illuminating remarks made by Lord Mildmay, supported his Lordship's contention that there should be no premature disclosures on the part of research workers, and that there should be no attempt to force them for political or other purposes to make them. Being connected with institutions carrying on scientific research work he desired to say that he did not know of anything that was likely to cause such a set-back to research as this premature disclosure of the results of scientific investigations. He would also appeal to politicians to do their best in the House of Commons and elsewhere not to allow any Government to wind up this admirable Committee because there did not appear to be forthcoming at the moment tangible results.

Sir DOUGLAS NEWTON asked if any steps were being taken for the holding of an International Conference in regard to foot-and-mouth disease? An International Conference had been held at Rio two years ago, and he had understood that a further International Conference was to have been held in Paris during the past year. That, however, had not taken place. Of course, this problem, with which they were so much concerned in this country at the present time, was an International one of worldwide interest, and he was wondering what were the reasons for the postponement of the Conference, and if there was any suggestion that the Conference should take place in the coming year in this or some other country. On the general question of foot-and-mouth disease, he said, many of them were much alarmed at its continued spread. They had recently had an outbreak in Cambridgeshire in connection with which many small points had cropped up. One was the question of marking cattle. They understood that some of these animals were imported. They had been marked when coming into the country, but when found infected those marks had disappeared. He thought that some system of marking should be adopted which was permanent or indelible, and that the system ought to give the date of entry of the cattle into this country. Then, there was the question of prosecution. They were getting these outbreaks continually, and he felt sure that there must be evasion of the different Orders, and so on, but he had never heard of any prosecution. In view of the enormous burden which this involved on farmers and the taxpayer, he did feel that anyone who evaded the Orders should be severely dealt with, and that every effort should be made to fix responsibility. He did not know whether it would be possible for the Society to investigate certain cases. At the present time investigations were conducted officially and sometimes the whole facts were brought out; sometimes, apparently, they were not.

Mr. DAVIS BROWN supported the suggestion made by Mr. Thornton. He was convinced that foot-and-mouth disease was often carried by human beings, and he was of opinion that infected farms should be placarded and that no one should be allowed to enter or leave the places without disinfection. In 1920 he was unfortunate enough to have an outbreak of foot-and-mouth disease on his premises, and at that time he had allowed no one to enter or leave the place without going through a tank containing disinfectant. If something in the nature of what Mr. Thornton had suggested could be put before the authorities, it would be an excellent thing. He could not help referring to what had been said by Sir Douglas Newton. He, Mr. Brown, happened to be one of a bench of magistrates that had recently had two cases before them of contravention of the Orders. In one a fine of £10 had been inflicted and in the other a fine of £20.

Mr. EVENS expressed the opinion that the county authorities in the country could do a great deal to safeguard the health of their cattle. The Lindsey Division, in consequence of outbreaks early in January, had closed the county to outside stock except for slaughter, and had since adhered to that policy with a large measure of success, because, while they had only one or two cases on the border of the county, the surrounding counties had suffered severely. He was of opinion that a good deal of the trouble was caused through stock being herded together in markets and lairages and being moved from market to market direct over and over again perhaps. His Committee was having a meeting with the authorities of the other administrative parts of Lincolnshire during the next week to see what steps they could take to try to prevent stock being herded together in markets and other places, and the suggestion was to be made that any Irish or Canadian cattle should come direct from the landing-stage on to the farm without being untrucked, and that there they should remain 28 days. With regard to the admission of stock from outside counties, this would be permitted only on licence, and the animals must not have been in a market for 28 days. He did not think that there would be any hardship in these conditions, and it would prevent animals being exhibited over and over again in large markets, from which a good deal of damage had resulted.

The PRESIDENT, before putting the report of the Veterinary Committee, added that he had attended the Conference at the Ministry of Agriculture simply as a substitute for gentlemen who were unable to attend. He only wished to bear witness to the excellent way in which Lord Mildmay had looked after the Society's interests.

The report of the VETERINARY Committee was then received and adopted.

Mr. ADEANE raised the question of the position that might arise if exhibitors of live stock were prevented by regulations in connection with foot-and-mouth disease, either local or otherwise, from exhibiting stock at the Society's Show at Leicester.

A general discussion ensued, in which Mr. CARR, Sir GILBERT GREENALL, Lord BLEDISLOE, Sir MERRIK BURRELL, Mr. MIDDLETON, Sir DOUGLAS NEWTON, Mr. BROCKLEHURST, Sir ARTHUR HAZLERIGG, Sir WALTER GILBEY, Mr. DAMPIER WHETHAM, Mr. HOWKINS, Mr. SMITH, Mr. HARRISON, Mr. HOWARD TAYLOR, COL. COURTHOPE, Mr. REA and the PRESIDENT took part. It was eventually agreed that such exhibitors who might be precluded from sending their entries forward to the Show by reason of the regulations referred to, should, if they applied, have their entry fees returned to them.

A Report from the GENERAL LEICESTER Committee was received and adopted, including a recommendation that a notice be sent to the Press correcting misleading statements which had gained currency that the Show was not going to be held.

Col. STANYFORTH, in presenting this report, said they wanted to make the public thoroughly understand that, even if the cattle exhibits were stopped, the Show at Leicester would still be held, for there would be the exhibits of horses, the whole of the Implement section and a vast number of other exhibits besides.

Apropos of the recommendation that the Honorary Director be asked to inspect a site for the Show at Plymouth, Lord MILDMAY OF FLETE said he had been very keen in getting this invitation, because he found it was extremely difficult to obtain new Members for the Society if the Show was never held within 100 miles of that district. The farmers there were among the keenest in England and they were most anxious to have the benefits in the future that a visit of the Society would bring them.

Lord BLEDISLOE, in presenting the report of the Research Committee, said that as regards Dr. Crowther's report, this had been approved for inclusion in the forthcoming volume of the Society's JOURNAL, and he ventured to recommend all pig feeders to read it when published, for not only was it intensely interesting but it was of very high commercial value.

WEDNESDAY, MAY 7, 1924.

Mr. Ernest Mathews, C.V.O. (President), in the Chair.

One new Governor and 102 new Members were elected.

In presenting the report of the Botanical and Zoological Committee, Mr. Coltman-Rogers said that as a Sub-Committee, presided over by Colonel Wheeler, was organising the Orchards and Fruit Plantations Competition, perhaps it would be better to ask him to move separately that Committee's Report as an addendum to the Botanical Report.

Lord Bledisloe said he understood from the report that the Committee were investigating Big Bud, and he desired to refer to the valuable work on this matter which was being carried out at the Long Ashton Research Station, of which His Lordship had the honour to be Chairman. He hoped that the Botanical Committee would keep in close touch with that work and avoid overlapping.

Mr. Coltman-Rogers said that this would certainly be done. Mr. Warburton, their Zoologist, was anxious to have particulars from any one who had carried out private experiments in his own garden, and it was hoped that anybody who had made such experiments would communicate with Mr. Warburton at Cambridge.

Colonel Wheeler, in moving the adoption of the report of the Committee on the Orchards and Fruit Plantations Competition, said that the number of entries—75 from 44 competitors—was very satisfactory, and certainly justified the continuance of these competitions. With regard to the demonstration plot of a fruit plantation in the Chester showyard next year, Messrs. Dickson would carry that out in accordance with the suggestion made by Sir Douglas Newton. He hoped it would prove a valuable feature of the Chester Show.

The President said he was sure the Council would receive with pleasure the intimation contained in the report of the General Leicester Committee that H.R.H. Prince Henry would be able to visit the show at Leicester on Wednesday, July 2.

The Report of the Veterinary Committee having been received and adopted, the following resolution was unanimously passed, and instructions given for a copy of it to be sent to the Ministry of Agriculture:—

> The Council of the R.A.S.E., though fully in accord with the view that further research into the cause and prevention of Foot-and-Mouth Disease is urgently needed, desires to express the opinion that, owing to the disease being so difficult to isolate, such research work should only be conducted by people authorised to do so by the Minister of Agriculture and only at such places sanctioned by him.
>
> At the same time the Council hope that, so long as absolute safety from the spread of the disease is secured, all possible facilities and help will be given to scientists wishing to undertake this work.

On the presentation of the Report of the Stock Prizes Committee, Mr. D. Combes said he wished to raise the question of the desirability of receiving stock for exhibition at Leicester. Leicestershire was the present centre of the disease in England, and, although, they might take what they considered exhaustive measures to protect exhibits from the trouble arising therefrom, the whole past history of the disease had burnt in their minds that, whatever one did, the disease seemed to beat them after all. If they allowed people to exhibit stock at Leicester they would of necessity cut out many of the counties which had managed to keep a clean bill of health up to the present, and whose regulations would undoubtedly prevent the re-entry into those counties of any stock after having been exposed to infection at Leicester. He spoke for his own county. He had reason to say with all definite conviction that the Wiltshire Diseases of Animals Committee would not allow an animal back into Wiltshire after it had been exposed at Leicester. This might appear unfair to the exhibitors from Wiltshire, and undoubtedly it was a definite hardship, but the committee who were charged with the care of the health of the cattle of the county must consider the matter in a broad light and consider the general welfare of the county in preference to personal interests. It did seem to him rather unfair that they from Wiltshire, with a clean bill of health, should be denied the privilege of showing at the "Royal," whereas others, from counties that had not been so fortunate, would be able to carry off the honours of the Show.

The PRESIDENT: What do you suggest?

Mr. COMBES replied that he wished to raise the question of cancelling the exhibition of cattle, sheep, goats and swine altogether.

The PRESIDENT said that Mr. Combes might take it that the Show would be held unless the Ministry of Agriculture stepped in. Whether gentlemen exhibited their cattle at Leicester was a matter for their own decision.

Mr COMBES said he would only point out that it was not a matter of their own individual volition whether these exhibitors showed or not. It was the county itself that would prevent their showing.

Lord MILDMAY OF FLETE expressed his thanks for the consideration that had been given to the invitation to hold the Show at Plymouth. Sir Gilbert Greenall had taken infinite trouble in going to Plymouth and examining the site there himself. He could only thank him most heartily.

Captain G. H. JOHNSTONE expressed the hope that the report of the Committee did not mean that the door had been banged, barred and bolted against a show in the West of England.

The PRESIDENT gave an assurance that the door had not been banged. The difficulty was that the site at Plymouth was not suitable for the Society's Show.

Captain JOHNSTONE said he did not mean to express it quite so strongly but it would be a great help to them in the West of England if they could get the Show to come there again.

WEDNESDAY, JUNE 4, 1924.

Mr. ERNEST MATHEWS, C.V.O. (President), in the Chair.

Before commencing the ordinary business of the Council, the PRESIDENT said there would be a church service on the morning of June 29th—the Sunday before the opening of the show—at St. Martin's Church, Leicester, to which the Mayor of Leicester had invited the attendance of all the Members of Council. A procession would be formed at the Town Hall, and he trusted that as many of the Council as possible would make it convenient to attend this service.

He also announced that Prince Henry would visit the Show on Wednesday, July 2nd, arriving by train from London. He was not yet in a position to give the details of the programme to be observed upon this visit, but he understood it was His Royal Highness's expressed wish that no formal morning dress or silk hats should be worn upon that occasion.

Eighty-six new members were admitted into the Society.

On the motion of Mr. ADEANE, seconded by the Hon. CECIL T. PARKER, it was resolved:—

> "That the Secretary be empowered to issue to any duly-nominated candidate for membership of the Society, on receipt of the annual subscription, a badge admitting the candidate to the same privileges as a Member during the forthcoming Show at Leicester, the formal election of such candidate to be considered by the Council at their next ordinary meeting."

The Report of the CHEMICAL Committee was presented, containing a recommendation that the Council approve generally of the Report of the

Departmental Committee on the Fertilisers and Feeding Stuffs Act and that an intimation of this approval be sent to the Ministry of Agriculture.

Mr. LUDDINGTON, in moving the adoption of this report, said the Committee felt that, as the Council had taken rather a leading part in getting the Departmental Committee appointed, some expression of their opinion should be sent to the Ministry to let them know that the Council were satisfied with the Report and its recommendations.

Lord BLEDISLOE expressed his regret that he had been unable to be present at the meeting of the Chemical Committee on the previous day, but he was bound to say that they were taking a great responsibility in asking the Council, without their knowing the contents of the Report, to endorse an expression of approval regarding it. He would suggest that copies of the Report be placed in the hands of Members of the Council, and that an expression of their views on its recommendations be deferred until the next meeting.

Mr. LUDDINGTON had no objection to such a course being taken. At the same time, he pointed out that it was only the Report to which it was suggested that the Council should give a general approval. When a Bill was introduced to give effect to the recommendations they would have an opportunity of criticising it. He was sorry that Lord Bledisloe had not been at the meeting.

Mr. MIDDLETON thought the criticisms of the Council would be much more valuable when a Bill was in print.

Lord BLEDISLOE said that, speaking as an old Parliamentary hand, he was quite certain that, if the Council that day gave their approval without sufficient knowledge to an expression of opinion on the Report, when the Bill came before Parliament the opinion of the "Royal" would be quoted in favour of it, whether they liked it or not.

The PRESIDENT then put the question that the matter under discussion be referred back to the Chemical Committee, and that copies of the report of the Departmental Committee be circulated to the Members of the Council.

This was agreed to, and the Report of the Chemical Committee, as amended, was received and adopted.

The SECRETARY announced that the Trustees of the "Queen Victoria Gifts" Fund had decided to make a grant of £140 to the Royal Agricultural Benevolent Institution for the year 1924, to be devoted to grants of £10 each in respect of male candidates, married couples and female candidates, the actual distribution in each class to be left until after the election to pensions by the Royal Agricultural Benevolent Institution.

WEDNESDAY, JULY 2, 1924.

Mr. ERNEST MATHEWS, C.V.O. (President), in the Chair.

The PRESIDENT said that probably all those present had seen in *The Times* newspaper that the Society's appeal against assessment to Income Tax on show surpluses had been decided against them. It would be for the Finance Committee to consider what further steps should be taken, and they would report to the Council later on.

As a question arising out of the Show, Mr. LUDDINGTON drew attention to a matter which had come to his notice when acting as Ring Steward of Ryeland Sheep. There was a silver challenge cup offered for the best exhibit of Ryeland sheep. According to the Secretary of the Sheep Society, it was a condition that the exhibitor must also be the breeder of the animals, but there was no mention of such a condition in the catalogue. In the end a breeder did win this cup, so that there was no question to bring before the Council. He thought, however, that there should be some understanding arrived at as to whether the exhibitor was to be the breeder also.

The SECRETARY said it all depended on the terms of the letter in which the offer was made. Probably it was the fault of the Flock Book Society Secretary in not making the conditions clear.

Mr. LUDDINGTON added that the judge was expecting that there would be a second judge. He had said that the Ryeland Society had come to some arrangement with the R.A.S.E.

The SECRETARY explained that the Ryeland Society had offered to pay for a second judge, but the Council never allowed that.

On the motion of the PRESIDENT, seconded by the Hon. CECIL T. PARKER, it was resolved that the best thanks of the Society are due and are hereby tendered to :—

(1) The officials of the General Post Office for the efficient postal arrangements in connection with the Show.

(2) The Chief Commissioner of Police for the efficient services rendered by the detachment of Metropolitan Police on duty in the Showyard.

(3) The Chief Constable of Leicester for the efficient police arrangements in connection with the Show.

(4) The St. John Ambulance Brigade, No. 3 District, for the efficient ambulance arrangements in the Showyard.

(5) Messrs. Barclay's Bank Ltd., local Bankers, for the efficient services rendered by their officials.

(6) Messrs. Merryweather and Sons, Ltd., for the provision of fire protection appliances, and for the efficient arrangements made by them in connection with the Fire Station in the Showyard.

(7) Messrs. Inglesants, of Horsefair Street, Leicester, for decorating and furnishing the Royal Pavilion and for supplying furniture for offices.

(8) The En-Tout-Cas Company, Ltd., for providing floral decorations at Royal Pavilion.

Letters of thanks were also ordered to be sent to various individuals and firms for assistance kindly rendered, and for the loan of articles for the purposes of the Show.

Proceedings at the General Meeting of Governors and Members,

HELD IN THE LARGE TENT IN THE SHOWYARD AT LEICESTER,

WEDNESDAY, JULY 2, 1924.

MR. ERNEST MATHEWS, C.V.O. (PRESIDENT), IN THE CHAIR.

Welcome to Prince Henry.

In opening the proceedings the PRESIDENT said :—

Your Royal Highness, my Lords, Ladies and Gentlemen : I think all present here will agree with me that we are exceedingly fortunate in having fine weather—(hear, hear)—and such a magnificent show of horses and live stock, for when one recollects the terrible returns of outbreaks of foot-and-mouth disease during the past six or seven months, and even up to this past week, a disease which affects cattle, sheep and pigs, one wonders whether to admire most the pluck of those exhibitors who have sent their animals to the show, or the splendid perseverance and optimism of the Local Committee, Sir Gilbert Greenall, Mr. Turner and the staff of the Society, in looking at the bright side of things and carrying on the work of preparing for and running a show of the dimensions of the "Royal." We are also fortunate in another respect. In this great year of exhibitions, when all from the King and Queen to the humblest subject are doing their best to make Wembley a success, it is more than gratifying to be able to welcome here to-day H.R.H. Prince Henry, who has come down specially to patronise our show and to keep up the great tradition of the Royal Family—(applause)—who have for many years honoured the show of this Society with their presence. I beg at once to move the following resolution :—

> "We, the Members of Council, Governors and Members of the Royal Agricultural Society of England, respectfully offer your Royal Highness the most loyal and cordial welcome to the Royal Show, upon the occasion of its visit to Leicester.
>
> "The Royal House has been very closely identified with the Society since its foundation in the year 1838, and very rarely has it happened that a representative of the Royal Family has not been present at the Show, and we have therefore to tender our thanks to you, Sir, for so kindly and graciously coming to Leicester to-day."

I will ask Sir Arthur Hazlerigg, who represents Leicestershire on the Council of the Society, to second this resolution.

Sir ARTHUR HAZLERIGG said that, as the representative on the Council of the "Royal" of Leicester and Leicestershire, it was a very great pleasure to him to second this resolution of welcome to His Royal Highness. He did not think it would be necessary for him to add many words to what had been said by the President. His Royal Highness and his brothers were not unknown there, but one noticed that they generally came rather later in the year. At whatever time they came they might be assured of a hearty welcome, and the oftener they came the better would the city and county be pleased.

The resolution was carried by acclamation.

H.R.H. PRINCE HENRY, in reply, said :—

"Mr. President, my Lords, Ladies and Gentlemen,—In the first place, I thank you very much for the kind way in which you have received me, and you, Mr. President, for the kind words you have just used. It is indeed a pleasure to me to be here to-day. I have to acknowledge that it is my first visit to the 'Royal,' and, although I am not personally associated with the breeding of stock, my love of horses, especially of Hunters—(hear, hear)—will make that feature most interesting. I am well aware that, apart from all classes of stock for which Great Britain is so famed and the 'Royal' is the exponent, there is a very large and instructive section of implements of all kinds used in agriculture, and that every inducement is offered by the 'Royal' to exhibit only the best article for work and labour-saving devices in every branch of farming, and there are also other sections of great educational interest. The exhibition now forms a small town of agricultural interest from which all should be able to gain some knowledge.

"Although it is my first visit, my family—(applause)—have always been keen supporters of your Society, and it may interest you to hear that since 1862 members of my family have been President on twelve occasions, apart from visits such as mine to-day, so that I am only continuing the association of my family with this historic Society. Marvellous progress has been made by the Society within the last few years, and especially since the first visit to Leicester in 1868. This is very gratifying, and a tribute to all connected with the organisation and administration of the Society.

"I do think that a special measure of thanks is due to exhibitors who throughout all the trials and troubles caused by the recent outbreaks of foot-and-mouth disease have persevered with their animals, and have succeeded eventually in showing them here to-day.

"The fact that the officials decided to carry out the Show in its entirety, in spite of adversity, is worthy of the courage and persistence of such an old Society, and I think that Sir Gilbert Greeenall—(applause)—ought to have our heartiest thanks for the steps he has taken to arrange every detail of the Show with such perfection as we see it to-day.

"Once more I thank you, and I hope it will not be my last visit to the 'Royal.'" (Applause.)

Show Details.

The PRESIDENT, continuing his opening speech, said:—

"It is usual at this meeting to give a few figures with regard to past Shows, but I do not propose unduly to burden you with statistics. This is the third Royal Show to be held in Leicester, the first was in 1868, the second in 1896, and now the third, this year, completes a coincidence by which your City has been visited at even periods of twenty-eight years. I well remember the Show of 1896, when I exhibited Southdown sheep with some small amount of success, and acted as judge of Jersey cattle.

In 1868 the Show resulted in a surplus of £448, but in 1896 a very considerable monetary gain to the Society of £3,600 was the outcome. Is it too much to hope to-day that when this Show closes on Saturday evening in spite of all the trying and adverse circumstances to which I have alluded, the coffers of the Society will again show a balance on the right side. (Hear, hear.)

For the benefit of those interested I should like to mention that in 1868 5 breeds of horses, 6 breeds of cattle, 7 breeds of sheep, 4 breeds of pigs were included in the Schedule of the Show. In 1896 9 breeds of horses, 15 breeds of cattle, 16 breeds of sheep and 6 breeds of pigs were represented, and this year in preparing the Schedule of the Show the Stock Prizes Committee submitted a classification for competition at Leicester consisting of no less than 18 breeds of horses and ponies, 22 breeds of cattle, 27 breeds of sheep, and 11 breeds of pigs, to say nothing of the goats, small live stock and produce. The total amount offered in prizes in 1868 was £2,480, in 1896 £6,017, and this year it is £15,360. You will gather from this that it is not without some thought and some courage that the Stock Prizes Committee recommended the Council to adopt such a comprehensive and liberal classification.

The implement section of the Show also illustrates the progress made, although comparison here cannot be made on such definite lines; still the area of the Showyard devoted to Implements is more than double that occupied by this section in 1896. The total amount of covered shedding in the Implement Yard is 11,697 ft., and the number of stands 455.

In accordance with what has now become the custom, the Leicestershire Agricultural Society has withheld its County Show for this year, and has made a contribution to the Local Committee's Fund for the Royal Show, for which we are most grateful. The members of that Society have received badges of membership entitling them to the same privileges as members of the 'Royal' in connection with the Leicester Show, and those who were desirous of exhibiting live stock have been privileged to do so at the fees applicable to members of the 'Royal.' The Corporation of the City of Leicester secured for the Show a spacious and most suitable site, which extends in all to over 140 acres. The site has been remarkably well prepared, the levelling draining and laying of gas and water mains being undertaken by the Local Committee, and in this connection I feel that a special tribute of thanks must be paid to the officials of the Corporation who have supervised this work. It is only by the happy co-operation of the Local Committee with the Council of the Society in London, and, with that of all concerned, that such a Show can be successfully organised and carried through to its conclusion, and I should be failing in my duty if I did not express, on behalf of the

Council of the Society, the most sincere thanks to the Local Committee, and especially to the Town Clerk of Leicester, who has worked so energetically to make the show a success. Without his ready help the arrangements made in connection with the Show by the officials in London could not possibly have been made.

One last word, as one who has been a Steward under Sir Gilbert ever since he became the Hon. Director of the Society in 1906, I should like to refer to the enormous amount of hard work and generous support that he gives to the Society. (Applause.) His charm of manner and his extraordinary tact on every occasion enables him to carry through the Royal Show as no one else could. During the eighteen years I have served under him I cannot remember a single occasion when he has not been able to deal with every difficulty to the satisfaction of all parties concerned. I will finish by saying that I have every reason to hope that he will take the leading part in the Shows of this Society for many years to come." (Hear, hear, and applause.)

Thanks to Mayor and Corporation.

Lord HARLECH moved the following resolution :—

> "That the best thanks of the Society are due and are hereby tendered to the Mayor and Corporation of Leicester for their cordial reception of the Society."

In doing so, he wished to acknowledge, on behalf of the Society, the great cordiality with which they had been received by the Mayor and Corporation of the city of Leicester. The President had already alluded to the excellent ground on which the Show had been erected. He was sure, not only from the accommodation afforded, but also from the picturesque point of view, it was everything they could desire. He would like also to say that without the assistance they received from cities like Leicester, they would find that the Society would be in short street.

Col. G. L. COURTHOPE, in seconding the resolution which had just been moved by Lord Harlech, said that very little need be added by him. When they went out of that tent and looked round the showyard, they would find more convincing reasons for expressing thanks than any words of his could give.

The resolution was passed unanimously.

Local Committee Thanked.

Sir GILBERT GREENALL (who was loudly cheered on rising) said it gave him very great pleasure indeed to propose :—

> "That the best thanks of the Society are due and are hereby tendered to the Leicester Local Committee for their exertions to promote the success of the Show."

He had, Sir Gilbert said, been working with the Local Committee for the past two years, and he could not help mentioning the way in which they had put their shoulders to the wheel. He would like to express his thanks to them, and especially to the Town Clerk, Mr. Pritchard, who had been a tower of strength to him all through. It would have been a tremendous disappointment to everybody if there had been no cattle at the Show. They had taken every precaution, and he could not see that any harm could possibly come through the holding of the Show. He must not say that the Leicester Committee were the best Local Committee they had ever had, because he saw amongst those present one or two gentlemen from Chester, which city would be visited next year. He also saw one from Reading, but he did not notice anyone from Newport, two of the places to which the Society hoped to go in the future. (Applause.)

Mr. WM. HARRISON seconded the resolution. A great deal of the success of the Show, he said, depended on the energies and activities of the Local Committee. Nobody had had more experience of this than their colleague, Sir Gilbert Greenall, and any word of praise from him with regard to the work of the Local Committee was praise indeed.

The resolution of thanks was heartily accorded.

Railways Thanked.

Colonel CORNWALLIS proposed a vote of thanks to the railway companies for the facilities afforded by them in connection with the Show, and especially to the London and North Eastern Railway for the special arrangements made by them.

Colonel STANYFORTH, who seconded, said he had been associated with railways for the greater portion of his life. Contrary to the general belief, the Railway companies did not make a great deal out of the Royal Show; they had to bear the cost of the additional work, and the traffic was really not profitable. So that extra thanks were due to the companies for the good work put in by them.

The resolution was carried.

Members' Suggestions.

The PRESIDENT then put the time-honoured question: "Has any Governor or Member any remark to make or suggestion to offer for the consideration of the Council ?"

After a short pause, the PRESIDENT said that as there was no reply he took it that the Council were giving satisfaction.

President Thanked.

Mr. JAMES WATT (Carlisle) proposed a vote of thanks to the President for his services in the Chair and for his splendid services during the year. He was not sure, he said, whether he was in a good position to do this. For the past fifty years he had paid annually the small sum of one guinea to keep that great institution in power, but a high authority had told them recently that they were merely a common trading community. In these circumstances he wished to make the first claim for a share of the plunder the Society had been accumulating for many years. (Laughter.) He had long thought that the Royal Agricultural Society was elevating the art of agriculture, and had enabled them to draw from mother earth the last ounce of blood it possessed, and also that the Society had made this country the greatest in the world for live stock, for agriculturists from every nation came here for the purpose of improving their flocks and herds abroad. He had believed, and that belief had not been shaken, that every man, woman and child in this country considered that the Royal Agricultural Society was nothing but the highest school for agriculture in the world. One man, and one man only, had said that they had left their high pedestal, and that the agriculturists of Britain were a common trading community. He therefore claimed his share for the last fifty years of their profits. If 10,000 or 15,000 members came along behind him and also claimed their shares, God help His Majesty's Commissioners of Income Tax! (Laughter.)

He hoped that Mr. Mathews would look back with pleasure on his year of office—perhaps he might be the last President of that great institution as an educational establishment. His successor might be the chairman of a public company. (Laughter.) He hoped that the power and influence of their great Society would not be satisfied by the dictum of one man, however great he might be. (Hear, hear.)

Mr. LEONARD SUTTON, in seconding the vote, said they all knew the important position and duties of the President of a great Society like theirs. Mr. Mathews had carried them out in the best possible way, not only this year, but he had been laying the foundation for another year at Chester, and had even gone further, for he had been to Reading to look at a site offered for the Show two years ahead. If the Society accepted the invitation from Reading, they would receive a most hearty welcome from the town and the adjoining counties, who would do their utmost to make that Show one of the greatest successes they had ever had. He most heartily seconded the resolution.

The vote of thanks was passed amid cheers.

Mr. MATHEWS, in expressing his thanks, said he was exceedingly obliged to Mr. Watt and to Mr. Sutton. He had been very pleased with Mr. Watt's allusion to the decision which they all deplored the other day. These would help him with a few remarks he had to make elsewhere as to the educational value of the Society. It was perfect nonsense to say that they were a trading concern when they gave a tremendous amount of thought and money to the educational side, including the breeding of live stock. No member was paid one penny, but all the profits made were put into the fund to carry on the show for future years.

WEDNESDAY, JULY 30, 1924.

Mr. ERNEST MATHEWS, C.V.O. (President), in the Chair.

Four new Governors and 162 new members were admitted into the Society.

Mr. ADEANE presented the Report of the Finance Committee. With regard to the Show at Leicester, he feared that the Society had suffered a somewhat considerable loss, but he would not care to give a figure at the present time. The accounts would be presented in December. As to the vexed question of Park Royal drainage, the Committee had interviewed their Solicitors on the matter, and they were very optimistic. It was hoped that the negotiations would shortly be successfully concluded

In regard to the Income Tax Appeal to the High Court, Mr. Adeane said that he had been present, and he thought the Judge was very sympathetic, as also was the Attorney-General, but, there it was, the law was against them. However, all had ended well, for certain of their friends in the House of Commons, especially Mr. David Davies, had done a great amount of work for this Society and other Societies in connection with opposition to this tax. They had managed to soften the heart of the Chancellor of the Exchequer, which was not an easy thing to do, and he himself had introduced a clause into the Finance Bill exempting this and other agricultural societies from income tax on any profits or gains on their shows. He did not think they need regret the action they had taken in fighting this case; they had been fighting not only for themselves, but for all agricultural societies, and had advertised their grievance. No doubt that had done something to facilitate the endeavours of the Agricultural Members in the House of Commons.

On the motion of Mr. ADEANE, seconded by Mr. RICHARDSON CARR, it was resolved, "That in order to facilitate the winding up of the accounts for the Leicester Show as early as possible, authority be given for the issue during the recess of orders on the Society's bankers for the payment of accounts connected with the Show."

The Report of the CHEMICAL Committee included this resolution:—

> "That the Chemical Committee, having carefully considered the Report of the Departmental Committee on the Fertilisers and Feeding-Stuffs Act, 1906, without committing itself to points of detail, gives a general approval of the proposals of the Departmental Committee, and, feeling that these constitute a great advance in the right direction on the present administration of the Act, urges the Ministry of Agriculture to take immediate action in bringing in a new Act on the lines indicated in the Report of the Departmental Committee."

In moving the adoption of the report, Mr. LUDDINGTON pointed out that the Committee had slightly modified the terms of the recommendation to the Council regarding the Report of the Departmental Committee on the Fertilisers and Feeding-Stuffs Act. At the same time, they felt that it was very essential that some indication should be given to the Ministry of Agriculture on the matter. The Departmental Committee had been set up largely at the request of the Council, and because they all felt that it was very necessary to have some alteration of the existing Act. The Committee felt that a Bill introduced on the lines of the recommendations contained in the report would be a great improvement. Of course, they reserved to themselves full powers to criticise any sections of a Bill that might be brought forward.

Mr. CHRISTOPHER MIDDLETON desired to add a few words in support of what had been said by the Chairman. It was very desirable that the Society should give a lead to other agricultural bodies in the country on the question of this report. It was quite true that they had not got everything for which they had asked; but he had himself given evidence before the Departmental Committee, and he must confess that a great many of the points to which they attached importance had been met. There was, however, one question, the removal of the veto of the Ministry of Agriculture, which had not been secured, but a considerable compromise had been made regarding that. The veto had not been abolished, but a distinction was made in the Committee's recommendations between criminal and civil proceedings. For a vendor not to give an invoice, it was to be a criminal offence, and it was left to a local authority to institute proceedings. The only reservation was that in criminal proceedings for misrepresentation the sanction of the Ministry had to be obtained. He thought it was a great advance on the previous Act, and for that reason he hoped the Council would give the report a general approval. He did not say that they should commit themselves to all its details, but they should give a lead to agricultural opinion on this matter, and he hoped that the Council would unanimously adopt the recommendation of the Chemical Committee.

Lord NORTHBROOK, in moving that the report of the VETERINARY Committee be received and adopted, referred to the paragraph which mentioned that a letter had been received from the Ministry of Agriculture as to the initiation of measures designed to prevent the introduction of foot-and-mouth disease through the agency of feeding stuffs carried on vessels. The Council would remember that this question rose out of what was known as the *Hartington* case. Lord Mildmay had been good enough to interest himself in this matter and to interview the officials of the Ministry. He thought it would interest the Council to know whether Lord Mildmay considered that the regulations now proposed by the Ministry were adequate to deal with such cases.

Lord MILDMAY OF FLETE said the Council would remember the serious state of affairs some time ago. The master of the s.s. *Hartington* had been able to sail from South America with a cargo of feeding-stuffs and unload them in a British port after they had been in close association with a cargo of animals coming from overseas consigned to a Belgian port. Foot-and-mouth disease had broken out on board, and the animals had been thrown overboard. It was only by chance that the discovery had been made after the feeding-stuffs had been landed and some of them had been dispersed. It was due to the fact that the voyage in the first place was to a Belgian port, and that the further voyage was looked upon as a new voyage, and it was not incumbent on the master of the vessel to make any statement here regarding what had happened before he reached Belgium. The Ministry of Agriculture at once set out to tackle the question with a view to preventing the recurrence of such a thing in future. The negotiations were carried on by correspondence which seemed to be interminable, and these negotiations hung fire. At last it was felt that progress could only be made if the interested parties could be got together inside a room; and so it came about that a conference was held some time ago at the Ministry of Agriculture under the chairmanship of Sir Stewart Stockman, which was attended by representatives of this Society, including the President, representatives of the Farmers' Union and permanent officials of the Ministry of Agriculture. The whole question was thrashed out across the table with the representatives of the shipping organisations, who, he might say, were most anxious to meet them in every way. And, to cut a long story short, they had come to an agreement of a most satisfactory character, particulars of which had been reported to the April meeting of the Council. It remained, however, to be seen what official effect would be given to the agreement. He was now in a position to say that a new Foreign Animals Order of 1924 had been issued and had been in operation since July 15th. It laid down that the master of any vessel which entered any port in Great Britain for the purpose of discharging any cargo should, if within the sixty days immediately preceding such entry the vessel had had on board any animals shipped to a port outside Great Britain from a port in any country which was at the time of shipment a scheduled country for the purposes of the Foreign Animals Order of 1910, forthwith make and deliver to the Ministry of Agriculture a declaration in writing showing (1) the port and date of shipment of such animals; (2) the number and description of such animals; (3) the number of animals (if any) which died or were slaughtered during the voyage, and the cause, or supposed cause, of death or slaughter; (4) the number and description of animals disembarked, and the port and date of disembarkation; (5) particulars as to the death of the animals during the voyage.

And, further, the representative of the Ministry of Agriculture might stop altogether the discharge of such a cargo, or might make such stipulations regarding the vessel as appeared to be necessary to him, if the requirements were not observed. If the master of the vessel failed to make the declaration, both the owner and the master of the vessel were subject to heavy penalties.

Throughout the proceedings of the conference the shipping authorities had been most anxious "to play the game," and were desirous of meeting them in every way. They even went out of their way to suggest that the working of the Order would be facilitated by the use of wireless telegraphy. He thought that the Council ought to acknowledge the handsome way in which they had been met and also the anxiety of the Ministry of Agriculture to get this question settled in a satisfactory manner. He was glad to think that all stock-breeders could congratulate themselves that this dangerous channel of infection had now been completely closed.

Mr. **John Evens** said that a month or two ago they had reason to hope, as the result of the course adopted by the Ministry of Agriculture and the orders put in force by Local Authorities, that foot-and-mouth disease would soon be stamped out. Unfortunately, that had not proved to be the case, and outbreaks were continually occurring. He asked whether the Council or the Veterinary Committee thought it would be advisable to appoint a small committee of practical men to look into the question and consider, amongst other things, especially two points; first, whether, if this disease unfortunately continued, it would be possible and advisable, after due notice, to have a standstill order during the coming winter; and also to consider the question of compensation.

Mr. **Guy Fenwick** thought that something should be done. Nothing new seemed to have come up, and they went on slaughtering. Unless some new measures were recommended by a small committee of people who knew, they were, he thought, going to have foot-and-mouth disease just as bad next winter as last.

Mr. CHRISTOPHER MIDDLETON said that if anything were done it should be done immediately. If such a thing as a standstill order were introduced it must be general and at a period when the least inconvenience would be caused. It would not do to wait until the November meeting. He thought the time for such an Order would be at the close of autumn, when sheep had been moved to their winter quarters and before the Christmas markets began.

Lord NORTHBROOK said they all agreed with the previous speakers that the present state of affairs was most discouraging. Some little time ago there was reason for thinking that the Ministry were coming to close quarters with the disease and that it was disappearing. During the last four weeks, however, there had been 73 outbreaks, as compared with 30 in the preceding four weeks. The matter had not been discussed at the Veterinary Committee because they hardly felt that they were in a position to offer advice as to what steps should be taken.

The PRESIDENT asked if Sir John McFadyean would let the Council have his views on the matter.

Sir JOHN MCFADYEAN said he would be very sorry to say anything to discourage the appointment of any Committee to investigate foot-and-mouth disease, and perhaps it would be especially desirable that those who were in the habit of describing themselves as practical men should meet together and see whether there were any suggestions to make that had not already been considered by those who called themselves scientific men. With regard to the advisability of instituting a standstill order, he would like to say that in his opinion such an order was foredoomed to failure unless it applied to people as well as animals. He believed that a large proportion of the outbreaks in this country which were not due to infection from abroad were due to the movements of people who had been attending the animals. And, of the remainder, the bulk of the outbreaks were probably due to the concealment of disease and the sale or movement of animals actually infected. But it was possible that a Committee composed of practical men might be able to offer useful suggestions that might be satisfactory to agriculturists.

Lord NORTHBROOK, on behalf of the Veterinary Committee, said they would have no objection to the appointment of such a Committee, and it would not be taken by them that the Council were expressing any want of confidence in them. It could not do any harm, and the small Committee proposed might make recommendations of value.

Major DUNBAR KELLY said he was glad to hear that Sir John McFadyean was not in favour of a standstill order. The County of Dorset had been closed against the admission of cattle from other parts of the country, but they had recently had nine outbreaks and in Kent where he lived, they had had two outbreaks in the last few weeks, which could not possibly be attributed to the movement of animals. In his opinion a standstill order would impose upon them the maximum of inconvenience with a minimum of security.

On the motion of Mr. JOHN EVENS, seconded by Mr. GUY FENWICK, it was then resolved :—

> "That a small Committee be appointed to consider the present position of foot-and-mouth disease."

The Committee was constituted as follows: the Earl of Northbrook, the President, Sir Gilbert Greenall, Bart., Colonel Stanyforth, Mr. Overman, Mr. Mansell, Mr. Tindall, Mr. Evens, and Mr. Rea.

After some further discussion, it was agreed that the date of meeting of the new Committee should be left to the Chairman, and that the Committee should be asked to report to the Council at their next meeting on November 5th.

The Report of the STOCK PRIZES Committee having been read,

Mr. MIDDLETON said he had been asked to take action with regard to the matter referred to in a letter which he had received recently. The letter was as follows: "May we draw your attention to the fact that the Colling Memorial Cup appears in the R.A.S.E. schedule as a hundred-guinea trophy, whereas this piece actually cost £350 to manufacture and could not be produced for this at the moment. We think it all in the interests of the Society that this mistake should be rectified." There was, Mr. MIDDLETON said, a certain amount of dissatisfaction in the North of England amongst the subscribers. The cup was somewhat difficult to keep in order, and he believed that last year the winner would not take the responsibility of keeping it, but he thought it was a pity that a valuable trophy like this should be hidden away on the premises of Messrs. Mappin and Webb.

As one of the committee who gathered the money for the purchase of the cup, Mr. WILLIAM BURKITT said that they did not feel that the best use of it was being made in the interests of the Society. There might be many opinions as to the beauty of the trophy, but there could be no question as to its costliness. He thought that in a year when the winner of the cup did not wish to have it in his own house it ought to be sent to the town where the Society proposed to hold their show, and arrangements made for its exhibition in the local museum.

On behalf of the Stock Prizes Committee, Mr. RICHARDSON CARR stated that the matter would receive consideration.

The following letter was read from the Mayor of Reading:—

TOWN HALL, READING.
July 18th, 1924.

SIR,—As Mayor, and on behalf of the Town Council of the County Borough of Reading, I beg leave to extend to the Royal Agricultural Society of England a cordial invitation to hold their annual show in Reading in the year 1926. The proposal has been before the Town Council on two occasions, when it was received with enthusiasm, and at a meeting of some of the leading inhabitants of the neighbourhood which I convened for the purpose of giving preliminary consideration to the financial and other arrangements, a resolution was unanimously adopted welcoming the suggestion that the show should be held in Reading and pledging those present to support the Mayor for the time being in an endeavour to raise the necessary fund. The inhabitants and Press of the town have expressed their approval of the action taken by the Town Council, and I have no hesitation in assuring the Society that, should they honour the town by accepting the invitation, every effort will be made by all concerned to make the show in 1926 an outstanding success.

The Lord-Lieutenant of Berkshire and representative residents and agriculturists in the county attended the meeting referred to above, and I am in a position to state that the inhabitants of Reading can look with confidence to those of Berkshire for hearty co-operation when the time comes to form the local committee who will make the appeal for subscriptions and the necessary arrangements for the holding of the Show.

I enclose the Society's Schedule of Queries duly completed by the addition of the appropriate answers, and I shall be happy to afford the Society or their officers any further information that may be required.

In conclusion, I beg to express the earnest hope that the Society will see their way to accept the invitation and, in doing so, to state that it is the wish of the inhabitants as a whole that after a lapse of forty-two years the Royal Show shall again be held in Reading.

I am, Sir, your obedient servant,
(Signed) FREDK. A. COX, Mayor.

Ernest Mathews, Esq., C.V.O.,
President, Royal Agricultural Society of England.

On the motion of the Hon. CECIL T. PARKER, seconded by Sir GILBERT GREENALL, it was unanimously resolved that the invitation received from the Town Council of the County Borough of Reading to hold the Show at Reading in 1926 be accepted.

WEDNESDAY, NOVEMBER 5, 1924.

MR. ERNEST MATHEWS, C.V.O. (President), in the Chair.

Before commencing the ordinary business of the Council, the PRESIDENT said it was his sad duty to refer to the loss of a dear colleague—the late Lord Ailwyn. He joined the "Royal" in 1888, was elected as a Member of Council in 1903, a Vice-President in 1905 and a Trustee in 1922. In 1911, when the Show was held at Norwich, he was Acting-President for H.M. The King. Lord Ailwyn was a Member of the Finance, Veterinary and Selection Committees, and a most regular attendant at the meetings both of the Committees and the Council. He was President in 1905 of the (then) Board of Agriculture and was responsible for the appointment of one of the most important Commissions in connection with Contagious Abortion in Cattle. His association with agriculture was almost universal, in fact, as his son had written lately, "Agriculture was the love of his life." During the war he had accepted the position of Chairman of the Agricultural Wages Board, where he gave universal satisfaction. Much more could be said as to what he did for the industry. His presence was always acceptable at 16 Bedford Square. In fact, when he came into the room it was almost as if a ray of sunlight had entered. His charming manner, his knowledge of the subject and his sound advice, always so kindly given, made him universally loved, respected and appreciated.

Owing to indisposition, the **President** said he had been unable to attend the funeral at Honingham, but the Secretary of the Society had represented him there. He knew other Members of Council were present to pay their last respects. Feeling that it would be the Council's wish he wrote a letter of condolence and sympathy to Lady Ailwyn, to which he had received a very kind reply, and another letter from the present Lord Ailwyn. He would ask all those present to signify in the usual way their sympathy with Lady Ailwyn and her sons at the great loss she and they had sustained.

Members of Council then rose in their places.

Two new Governors and 35 new members were elected.

In presenting the Report of the **Finance** Committee—which was received and adopted—Mr. **Adeane** said he had very great pleasure in asking the Council to grant increases to their excellent staff for all they had done. Last year, the Council would remember, £255 had been voted to them in bonuses, but the Council would, he thought, agree that a bonus system on profits was not a good one, because in this year of loss, the staff had had to work even harder than in the previous year. Therefore the Committee recommended that the salaries be increased by £265 and distributed amongst the various members of the staff in the manner stated in the Report read out by the Secretary.

The Report of the **Botanical and Zoological** Committee was presented and adopted after some discussion in which Mr. **Coltman-Rogers**, Col. **Courthope**, Mr. **Middleton** and the **President** took part. It was further resolved, on the motion of Mr. **Coltman-Rogers**, seconded by Col. **Courthope**, that a notice be added to the Plantations Competition schedule pointing out that it is the desire of the Council that plantations should be judged in their normal condition of management; that it is undesirable that they should be specially prepared for competition, and that the Judges will be requested to ignore any unusual condition which, in their opinion, is due to special preparation.

The Report of the **Veterinary** Committee was presented, including a resolution:

> "That as, in the opinion of this Committee, Foot-and-Mouth Disease has been sometimes spread through the untrucking of cattle for feeding, etc., on the way from the port to their destination, they urge upon the Ministry of Agriculture that the period for which animals may be carried without unloading should be extended from twenty-four to *forty-eight* hours."

Col. **Stanyforth**, in submitting this report, expressed regret at the unavoidable absence of Lord Northbrook, because, with his great knowledge and the extremely clear and lucid way in which he put matters to the Council, it was very difficult to take his Lordship's place and to do as he would have done. Col. Stanyforth therefore asked for the indulgence of the Council. In the first place, it was very disappointing to them that this large increase in the number of cases of foot-and-mouth disease had occurred since the committee which the Council appointed to go into this matter had met on October 2nd. There had been one period of a fortnight or nearly three weeks without an outbreak, and then the disease had broken out again. This had occurred owing to foot-and-mouth disease not being detected in the market at Derby, he thought, on October 7th. They were mostly fat stock, so that many of the animals were now dead, and those still alive had been traced by the Ministry, but there had been no information until the harm had been done. The Council had heard from the report that in the opinion of the Committee, foot-and-mouth disease had been sometimes spread through the untrucking of cattle for feeding and watering on the way from the port to their destination, and the Committee wished to urge upon the Ministry that the period for which animals might be carried without unloading should be extended from twenty-four to forty-eight hours. It would be within the recollection of the Council that this matter had been brought up last year. Infection had then been traced to cattle trucks, or, more particularly, he thought, to the places where animals had been unloaded on a journey to give them food and water. The matter had been brought before the railway companies, and everything that could be done had been done, but he was of opinion that, try as they might, it was almost impossible for the companies effectively to disinfect trucks, docks and railway sidings where animals were fed and watered, and this was a danger they had to think of in the spread of disease. At present cattle had to be taken out of the trucks after twenty-four hours. In the case of sheep he thought it was thirty-six hours. They now proposed to ask the Ministry to make the period forty-eight hours. If they adopted that, it would mean that practically no animals would be taken out of the trucks on the way from the port to their destination.

With regard to the report of the Committee appointed at the last meeting, he had asked Mr. Evens to submit that to the Council, as he thought Mr. Evens was the proper person to do so in the absence of Lord Northbrook.

Mr. Patterson hoped that the Council would not adopt the suggestion to extend the twenty-four hours to forty-eight hours, for it would result, if carried into effect, in great hardship to the stock. He suggested that the railway companies should be urged to make a special effort to expedite the 'conveyance of stock, so that journeys could be got through in twenty-four hours and the necessity for untrucking obviated.

Mr. Overman, the mover of the resolution at the Veterinary Committee, entirely disagreed with Mr. Patterson. It would be within the memory of that Council, he said, that they had urged over and over again the speeding up by railway companies, but it had been impossible to get anything done. A large percentage of the cattle sent from such places as Holyhead, Birkenhead and Bristol to the Eastern Counties were unloaded en route, and the Ministry were aware of cases where cattle had been unloaded in prohibited areas. In one case—at Atherstone—animals were untrucked within three miles of an outbreak. All he could say was that if it was a slight inconvenience to the cattle to be kept in the trucks during a journey occupying forty-eight hours, he thought it was much better than these animals being unloaded at any place on the journey and thus running the risk of infection. He did not believe the railway people were to blame, for there were many difficulties. If one had a special train it might be possible to get an express, but in many cases the cattle went in lots of two trucks or three trucks for individual farmers, and that was where difficulties arose in getting railway companies to speed up the traffic. They could not get the law altered—it was an

Act of Parliament—but the number of hours laid down was left to the discretion of the Ministry of Agriculture, who had put it at 24 hours. What the Committee asked now was that the time should be extended to 48 hours to prevent the grave risk of foot-and-mouth disease being spread all over the country. He was very much surprised that Mr. Patterson should urge the question of cruelty in this matter. Every one knew that cattle often starved themselves for 24 hours, and he did not think that 48 hours would deteriorate the cattle in any way.

Lord STRACHIE supported Mr. Patterson, and expressed the opinion that the proposed extension to 48 hours was very undesirable. When he heard Mr. Overman's remarks, he almost thought that he must be a railway director speaking on behalf of the companies rather than in the interests of the cattle. What they ought to do was to get Parliamentary pressure to bear to make the railway companies come to heel, and to insist that cattle should be carried more expeditiously.

Sir DOUGLAS NEWTON desired to associate himself with the remarks of Mr. Patterson. He thought the proposal was very wrong indeed. These cattle were confined and penned in the closest possible conditions without water or food, and, if the Council took up the attitude proposed by the Committee, they would put themselves in the wrong. If the Council could not arrive at a decision at that moment, he hoped the matter would be referred back.

Asked by the PRESIDENT if he desired to move an amendment to the Report.

Mr. PATTERSON said he would move that the matter be referred back. This was seconded by Lord Strachie.

Mr. CHRISTOPHER MIDDLETON suggested for the consideration of the Council that they should adopt the period of 36 hours by way of compromise, as he thought that this might get over the difficulty.

Mr. OVERMAN said he was not convinced, but if the Council thought 48 hours too long he was willing to accept the shorter period of 36 hours.

Colonel STANYFORTH thought the Veterinary Committee would be agreeable, but he would like the Council to know that they had gone very carefully into this question on the previous day, and they had considered that the danger to the cattle of England was so grave that they must adopt stringent measures. As Mr. Overman had said, there was no real cruelty to the animals in the proposed period of 48 hours; but, if it were the wish of the Council, he would, on behalf of the Committee, agree to 36 hours.

Mr. PATTERSON said it was not so much through the lack of food as of water that the cattle suffered. If there were no other way of dealing with the matter he would have no hesitation in supporting the decision of the Veterinary Committee, but he thought, under the special circumstances, that it was not too much to ask the railway companies to deliver the cattle within a reasonable number of hours. He did not want to be obstructive, and, if his seconder agreed, he was prepared to withdraw the amendment.

Mr. MANSELL, who seconded Mr. Overman's resolution at the Veterinary Committee meeting, said he, personally, would like to see a change made to 48 hours, but he was quite willing to accept 36 hours, for in that period the bulk of the cattle carried on the railways should be delivered.

Lord STRACHIE said that his proposer had appealed to him to withdraw his opposition, and, while agreeing to this, he made it clear that he had not been converted to the view that 36 hours was a correct time to detain these cattle.

Sir MERRIK BURRELL said that before this matter was settled he thought there might be another means of dealing with these difficulties. The only animals affected were cattle going from the western ports to the eastern counties and sheep from Scotland to England. The shorter journeys could be speeded up if the railway companies would take the trouble. Would it not be possible to have some special docks set apart by the railway companies where only these particular animals should be untrucked?

The President then put the question that "48 *hours*" be altered to read "36 *hours*" in the Veterinary Committee's resolution. This was carried. The report of the Veterinary Committee, as amended, was then received and adopted.

Mr. Gates inquired whether the inspection of markets was optional or compulsory throughout the country, and asked if there was any information as to whether Derby market had been properly inspected?

The President said that question would be referred for consideration to the Veterinary Committee.

The Report was then presented of the Committee appointed by the Council at their last meeting on July 30th to consider foot-and-mouth disease conditions, and the following is a summary of their recommendations:—

1. The Committee are thoroughly in accord with the recommendation of the Departmental Committee that there should be one authority only for the administration of the Diseases of Animals Act in each geographical county, and that such authority should include representatives of the county and any borough local authority therein.
2. They are of opinion that standardised regulations should be issued to all local authorities setting out what they are to do in suspected and confirmed outbreaks, in order that there may be uniformity of action.
3. They recommend that the Ministry of Agriculture should issue a general order to all local authorities providing that on a suspected case of foot-and-mouth disease being reported, a standstill order covering a radius of five miles should immediately be put into force until the case is confirmed or otherwise.
4. They recommend that on the confirmation of an outbreak movement should be prohibited over a fifteen miles radius of the infected place, but that, if no further outbreak occurred within seven days, the area should be reduced to as small a radius as possible drastically controlled.
5. They are of opinion that Inspectors who are present at the killing of infected animals and the burning of their carcases, should not be employed for inspecting healthy stock.
6. They are of opinion that more stringent regulations should be issued and enforced concerning inspectors and slaughtermen as regards disinfection.
7. They consider that the Ministry of Agriculture might with advantage tighten the regulations governing markets and cattle dealers.

Mr. Evens, in the absence of Lord Northbrook, moved that this report be received and adopted. The report, he hoped, would explain itself, and, in presenting it, he only desired to express his sincere regret that the improved conditions referred to did not obtain to-day.

Mr. Mansell laid great stress on No. 3 of the recommendations of the Committee, on the question of the issue of a standstill order covering a radius of five miles immediately on a case of foot-and-mouth disease being suspected. He had had the honour of sitting on the Departmental Committee some two years ago. That Committee had made this one of their recommendations, and instead of using the word "may," they had inserted "shall." Those who could remember the outbreak of two or three years ago would recall the case of Newcastle. Gateshead heard of it, and immediately sent some thousands of Irish cattle North, South, East and West, and the result was the beginning of a very serious outbreak. Then, regarding an outbreak at Crewe, before it could be confirmed thousands of sheep had gone to different places in Cheshire, and other parts. These cases showed the necessity of having this automatic standstill order.

Mr. Guy Fenwick said that when foot-and-mouth disease broke out about twelve miles from him (the case occurred on a Thursday night, when the existence of the disease was strongly suspected on the borders of Leicester and Rutland), he had been telephoned to about 11 o'clock at night and told of the case, and the next thing was that there were cattle moving about all over the country and the roads were crowded with animals. No doubt the Chief Constable could have stopped it, but there was no Order from the Ministry that movement should be stopped at once, and cattle continued to be moved until the Ministry's officials came down and confirmed it. There was no Order till the Saturday. Members of Council could imagine the trouble caused in that time.

Mr. Hobbs supported Mr. Fenwick. In his district, when there had been an outbreak, the whole of the cattle had been immediately on the move. In another case, on a market day, it was said that a policeman had stated that an outbreak of foot-and-mouth disease had been reported, and had suggested that selling should begin at once.

Sir Douglas Newton said there was one point that had not been dealt with in the report, and that was the position of farmers who lived on the borders of two administrative areas. Their position was unfortunate. A man might find that his railway station was in one administrative area, while his farm was in another, and again he might find that his market was in another county. Provision should be made for some elasticity in order that a farmer or group of farmers should be allowed to elect as to what area they should come in. (Dissent was expressed by several members.) He could not see any objection to it being on those lines. When a market was closed a farmer was shut up altogether, and if, by a little foresight and arrangement by grouping, this difficulty could be got over, it would help the farmer. Some provision should be made to enable farmers to avail themselves of the markets most useful to them.

The President told Sir Douglas that this was rather a question for the House of Commons.

Lord Strachie, referring to recommendation No. 7, said he had twice had to report to the Ministry of Agriculture great carelessness and slackness on the part of their officials. In one case licences had not been given, and cattle had been smuggled out of one area into another district. He thought there was a certain danger in allowing Local Committees to open markets at some risk. He himself, as Chairman of one of those Committees, had had great difficulty in a case of this kind, pressure having been brought to bear by some auctioneers on certain members of his Committee, and he thought that Local Committees did sometimes take action they ought not to take under pressure of auctioneers.

Sir Merrik Burrell asked whether the Committee had considered the question of compensation, as no mention was made of it in the recommendations. It was a very big question, and there were many people who thought that certain classes of farmers were compensated too highly. This removed all reason for keeping the disease off their farms. He did not want to go into the controversial question of how much they should get, but he would like to know if the Committee had considered the question and if they had any views to put before the Council. He would like to emphasise with regard to recommendation No. 3 that a Chief Constable already had the power to make a Standstill Order on the report of a suspected case, and if this were not done it was entirely the fault of the local authority. If a local authority knew its job it would give such an order to its Chief Constable. He mentioned a case within his knowledge where an outbreak was suspected, and within a few hours there were a number of policemen engaged in holding up all movement of stock. He suggested that where this action was not taken immediately on a suspected outbreak a local authority should get a new Chief Constable.

Mr. EVENS said that, regarding the remarks made by Lord Strachie on Clause 7, the Committee considered that the clause in question covered the point his lordship had raised, and it put the onus on the Ministry. With regard to Sir Merrik Burrell's remarks, the Committee knew that orders were in existence, but they wished to emphasise that they should be enforced, It was uniformity that they had aimed at. The question of compensation the Committee considered to be outside the terms of their reference.

The Report was then adopted, and instructions were given for the recommendations to be sent to the Ministry of Agriculture.

The Hon. CECIL PARKER moved that Sir Gilbert Greenall, Bart., be nominated for the Presidency of the Society next year. He was sure that this nomination would give tremendous satisfaction to all members, to exhibitors, and to the whole county of Cheshire. He had very great pleasure in submitting the resolution.

Sir J. B. BOWEN-JONES said he could assure the Council that it was no conventional phrase when he said that he had the greatest possible pleasure in seconding the proposition before the Council.

The resolution was then put to the meeting and carried by acclamation.

Sir GILBERT GREENALL thanked the Council very sincerely for the honour they had done him in putting forward his name as President of the Society for 1925. He felt more gratified because the show next year would take place in his own county and among his friends. He could assure them that nothing would be left undone on his part to make the show one of the greatest successes they had ever had. They had a splendid ground, they had got a nice lot of money in—(laughter)—and he thought they would have an excellent show. He hoped they would be favoured with fine weather and no foot-and-mouth disease.

The Hon. CECIL PARKER then moved that Mr. Percy Crutchley be elected a Trustee of the Society. This was adopted.

Mr. CRUTCHLEY assured the Council that he greatly appreciated the honour conferred upon him, which was entirely unexpected, and he begged to tender his warm thanks to the Council.

On the motion of the Hon. CECIL PARKER, seconded by Sir GILBERT GREENALL, Lord Desborough was elected a Vice-President.

The Report of the DAIRY AND PRODUCE Committee having been presented, Sir DOUGLAS NEWTON said that on the question of the International Dairy Congress, he might tell the Council that the meeting convened by the Ministry of Agriculture had been largely attended and by a very representative body of people. Two resolutions had been passed, viz. :—That every endeavour should be made to hold this International Dairy Congress in, probably, 1926. A Congress was being held in Paris, and on that would depend when the Congress in England would take place. The Congress held in America last year cost £27,000, but here, with more economical ideas, the expenses would probably not amount to more than £10,000. He did not think that there should be any difficulty in raising funds ; it should be quite easy. The initial meeting suggested that the various bodies, if willing, should pass resolutions promising financial support, and also that bodies associating themselves with this movement should appoint a representative to attend the second meeting, such representative being authorised to vote on the constitution of a committee representative of the dairy industry. It was, he thought, intended to hold a further meeting at an early date, and he hoped the "Royal" would see its way to be represented.

Mr. EVENS stated that he had attended the meeting convened by the Ministry of Agriculture on the previous day, regarding the proposed

International Dairy Congress. After consultation with the President and Mr. Turner, he had decided to report to the Dairy Committee by whom he was appointed.

The PRESIDENT said the whole question of this International Dairy Congress had been referred to the Dairy and Produce Committee, and would be considered by them at their next meeting.

Mr. MIDDLETON stated that the next meeting of the Conference in connection with this matter might take place very shortly, and possibly before the next meeting of the Council. He therefore suggested that Mr. Evens should continue their representative.

The PRESIDENT said that Mr. Evens would, he understood, continue to represent them.

The Report of the DAIRY AND PRODUCE Committee was then received and adopted.

The Report of the RESEARCH Committee was received and adopted. Lord BLEDISLOE said the Council might like to know that two of their colleagues had done most invaluable work on behalf of the Research Committee. One of them, Mr. Dampier Whetham, had given up a very great deal of his holiday to research work for the Society. The other was Professor Somerville. As Referees appointed for the purpose, they had both had to consider an exceptional number of papers submitted in competition for the Society's gold medal for agricultural research. Mr. Whetham had also spent a good deal of his time in exploring the whole question of the applicability of electricity to farming requirements, and later on his Lordship was hopeful that it would be possible to submit to the Council a most valuable report. He thought the Council owed their thanks to both these gentlemen for all the trouble they had taken.

The PRESIDENT then read to the Council a letter from Sir Charles Hyde regarding research and education problems claiming attention. This letter, at the suggestion of the President, was referred for reply to Professor Somerville and Mr. Dampier Whetham.

The report of the Council to the Annual General Meeting of Governors and Members to be held at the Royal Agricultural Hall, Islington, at 2.30 p.m., on Wednesday, December 10th, was prepared and ordered to be issued.

On a motion from the chair, the seal of the Society was affixed to (1) the contract with Messrs. Edward Wood and Sons for the erection of the Chester Showyard, and (2) the contract with Messrs. Letheby and Christopher, Ltd., in connection with the show catering.

WEDNESDAY, DECEMBER 10, 1924.

Mr. ERNEST MATHEWS, C.V.O. (President), in the Chair.

The PRESIDENT, at the commencement of the proceedings, said that in view of the bad weather they were having, he fancied that there would not be many members of Council present at the annual general meeting, and he would therefore like to take that opportunity of thanking members of Council for the kindness, courtesy and forbearance they had extended to him during the past year in his position as President of that Society. He would particularly thank Colonel Stanyforth, his predecessor in office, who had had so much to do with the new bye-laws and who had kindly coached him at the early meetings.

Five new Governors and 37 new Members were elected.

Having presented the report of the Finance Committee, Mr. ADEANE submitted the statement of receipts and expenditure in connection with the Leicester Show. He regretted that he had not so pleasant an announcement to make as he had last year, for members of Council would remember there was then a record surplus amounting to £19,102. This year they had to record a loss on the Leicester Show of £5,976. The difference, comparing one show with another, was made up in the following way: There was a large decrease in the takings at the gate, amounting to £18,108; owing to foot-and-mouth disease and exhibitors in many cases not being able to send their stock to the Show, they had had to return entry fees amounting to £2,000. It would also be remembered that last year they had made a reduction in the implement fees and that had cost the Society £2,500; also, they had undertaken to relieve the Breed Societies very considerably with regard to the prize-money. They were, in fact, prepared to increase the grant by £3,000, but the Breed Societies had come forward very generously, so that actually the increase had only amounted to £2,000. If those figures were added together, it would be seen that they almost made up the difference in the results of the two shows. He was glad to say that to meet this loss of nearly £6,000 they would not have to entrench on the Invested Reserve Fund. As they knew, the Council had allocated from the ordinary account £3,500 to the Leicester Show, and the remainder would be drawn from the uninvested reserve. It was difficult to say what were the causes of that decrease, but it was quite clear that one of the chief causes was the Exhibition at Wembley. He was told that excursion trains had actually poured out of Leicester during the week of the Show. He did not suppose that such a thing had ever been known before in the whole history of the Society. Then there was foot-and-mouth disease, which had prevented a great many of the stock from getting to the Show. This had depleted the classes and lessened interest in the competitions; and, in additior, there had been very bad weather during the last three days of the Show. To relieve that gloom, they had to put against it the fact that in future they were not to be taxed on the profits of their Shows.

But for the causes he had mentioned, he thought that, in all probability, the Leicester Show would have been a great success, and their thanks were due to the Mayor and Corporation for their cordial and generous welcome, also to the Local Committee for the great amount of work they did, and they never forgot on those occasions their Honorary Director, Sir Gilbert Greenall. He would also like to mention the Stewards, who did a vast amount of voluntary work.

The Report of the Veterinary Committee having been presented, Mr. H. DENT BROCKLEHURST drew attention to a case that had occurred in Gloucestershire the other day. Seven head of cattle were sent from Ireland to Fishguard by a large Irish cattle dealer, and thence were licensed to go to Newport in Monmouthshire. There the consignee refused to take them and the dealer moved the animals from Monmouthshire into Gloucestershire, and somehow the tags that were put on at Fishguard, or wherever they were put on, were removed when the cattle were brought into Gloucestershire. In Gloucestershire they had a regulation that Irish cattle must go to the particular place to which they were consigned and remain there for twenty-eight days. Had there been anything wrong with those cattle the Council would realise what a serious thing it might have been for the county. The case had come before the Gloucestershire Petty Sessions, and he was glad to say that the dealer had been fined £5 for each beast and £5 costs, making a total of £40. He did not know that that was a very serious thing for a large cattle dealer, and the reason he had drawn attention to the case was that this kind of thing might be going on in other parts of the country. It was a very serious matter. He did not know whether it would be possible, or if the Veterinary Committee would think it desirable, to consider whether there ought not to be larger penalties and whether in flagrant cases like that there ought not to be powers of imprisonment.

The Earl of NORTHBROOK thought this was a matter for the Local Authority, for it was obviously an offence against the Orders of the Ministry of Agriculture.

Colonel STANYFORTH, in presenting the Implement Committee's report, drew attention to the generous offer of the Electricity Committee of the Chester Corporation to supply free of charge electric power to exhibitors who required it in the showyard. It was, he said, an offer the Council must thank the Corporation for.

The PRESIDENT, before moving, in the absence of Mr. Parker, the adoption of the report of the Committee of Selection, welcomed, on behalf of the Council, Sir John Cotterell, Bart., who was attending for the first time since his election to the Council; Mr. Lindsay Everard, High Sheriff of Leicestershire, who had given them great assistance at the recent Show, and had been elected as an additional Member of Council for the Division of Leicestershire; and Mr. Jacob Wakefield, the newly elected representative of Westmorland, whose father had been a very useful member of the Society.

The PRESIDENT, in presenting the report of the Dairy Committee, referred to the suggestion that an International Dairy Congress should be held here—in 1926, he thought. At present he believed that the Congress was supposed to take place in Paris, but Members of the Committee were anxious that England should come in, and the Royal Agricultural Society had been approached as the leading Society to say if they would welcome such a Congress in this country, and if they would give it their financial support. When the question was a bit riper it would no doubt be considered by the Council. Members of Council might have seen a reference to the matter in the agricultural papers, and he thought that they ought to be put in possession of the facts, as this Society would naturally be looked to to give a lead to other societies in the country.

Sir MERRIK BURRELL, in presenting the report of the Research Committee—which was adopted—said he would like to ask the Members of the Council, and also members of the Society, if they would be so kind as to submit to the Research Committee any problems in agriculture which they thought that Committee might usefully investigate. The Committee would, early next year, have to present to the Finance Committee an estimate of their probable expenditure for the year, and obviously it would be of great assistance to the Committee if, before preparing that estimate, they could have particulars of problems on which the Society's funds might usefully be expended. He added that if Lord Bledisloe was not able to continue as Vice-Chairman of the Research Committee owing to his Government work, he would like, on behalf of the Committee, to express their thanks to his lordship for the most useful services he had in the past rendered to the Council in that capacity.

The following Standing Committees were appointed for 1925:—Finance, Journal and Education, Chemical, Botanical and Zoological, Veterinary, General Show, Stock Prizes, Judges Selection, Implement, Showyard Works, Selection and General Purposes, Dairy and Produce, Horticultural and Research. The present members of the various Standing Committees were (with some exceptions) reappointed to those Committees. Col. G. L. Courthope, M.P., was added to the Finance Committee, Mr. U. R. Burke to the Committee of Selection and General Purposes, Mr. W. Lindsay Everard, M.P., to the Dairy and Produce Committee, and Mr. William Burkitt and Mr. R. M. Greaves to the Research Committee.

Proceedings at the Annual General Meeting of Governors and Members,

HELD AT THE ROYAL AGRICULTURAL HALL, ISLINGTON,

WEDNESDAY, DECEMBER 10, 1924.

MR. ERNEST MATHEWS, C.V.O. (PRESIDENT), IN THE CHAIR.

President's Opening Remarks.

The PRESIDENT, in opening the meeting, said that before reviewing the history and work of that great Society during the past year, and submitting the report and accounts, he desired to express the thanks of the Society to the Royal Agricultural Hall Company and to the Smithfield Club for the loan of the room in which they were holding their meeting that day, and he would particularly refer to the courtesy and kindly treatment that had always been extended to them by his old friend Mr. E. J. Powell, who had just retired from the Secretaryship of the Smithfield Club after thirty-seven years' service.

When a year ago he had been elected President of the Royal Agricultural Society of England, he had felt that a great responsibility devolved upon him, to see that the traditions of the post which he had to fill should be handed over to his successor at the end of his year of office unimpaired. That hope had, unfortunately, not been realised, for he feared that the year 1924 would stand out as one of the Society's lean years, although it was needless to say that no efforts had been wanting on the part of all, commencing with Sir Gilbert Greenall, to carry on and make the annual Show the success that it had invariably been under his able management. Circumstances beyond control arose which militated against their making the Show at Leicester a success, when looked at from the financial point of view. He would first refer to the numerical strength of the Society. It was regrettable to find that notwithstanding that 736 new members had been elected during the past twelve months, the losses by death and withdrawals had amounted to 908, leaving a deficit on the whole year of 172 members. That in itself was disheartening, for the minimum subscription to the Society was only £1 per annum, while the privileges and advantages derived from membership far outweighed that figure. He would, therefore, make a special appeal to all agriculturists, and particularly breeders of pedigree stock, to join that old Society during the next two or three months, as he knew nothing would please his successor, Sir Gilbert Greenall, more than that during his year in his double capacity as President and Honorary Director, the number of the members of the Society should reach a record figure. That would be the best way to show their gratitude to one who had done so much for agriculture and the "Royal" as Sir Gilbert. The Secretary, Mr. Turner, would be pleased to supply forms of proposal for membership to any present who would be good enough to take them.

The Show at Leicester was an excellent one and remarkable in many respects. In the first place, the Society was fortunate in being able to hold a Show at all. The ravages of foot-and-mouth disease throughout the country very seriously affected the possibility of carrying on the live-stock portion of the Show, and it was not until almost the last moment that the Honorary Director knew, as a certainty, that the Show could be held in its entirety, and that live stock would be included. That fell disease in some cases prevented many members from making entries of live stock at all, while in other cases those who had entered stock were precluded from sending them to the Show in consequence of Orders prohibiting movement. Consequently, from one cause or another, although a large number of animals were entered for the Show, there were many absentees, and the empty stalls in the yard brought home the seriousness of the outbreaks and the damaging effect they had on the Show. In this connection it was worth recording that the entry fees were returned in full to those exhibitors who applied for them and were prevented from sending their cattle by Orders of the Ministry of Agriculture. In spite, however, of the many difficulties that had to be faced, the work of preparation for the show went bravely forward, with the result that it had been held without curtailing it in any department. The weather, unfortunately, during the week had not been all that could be desired, and that and the magnificent Empire Exhibition at Wembley had undoubtedly affected the attendance, which, as was shown in the report numbered 85,531, against 146,277 when the show was held at Leicester in 1896. The city of Leicester had welcomed the Society warmly, and the Society's thanks were due to the Mayor and Corporation for their hospitality and for the excellent local arrangements they made and for procuring a site for the show in every way satisfactory, and approached by roads that would be hard to beat. To the Town Clerk of Leicester, who did an enormous amount of work for many months prior to the show and during the show in arranging every little detail required of him, he, as President, and on behalf of the Governors and Members, would wish to pay a special tribute of thanks. His own memories of the show and all its associations, and especially the kindness and courtesy he had received from every one at Leicester were of the pleasantest, and he could only have one more wish, and that was that the financial result of the show might have been different.

H.R.H. Prince Henry, as they knew, had attended the Show on Wednesday, July 2nd, and had been present at the General Meeting. He had visited various exhibits in the showyard during the afternoon, and had been particularly interested in the exhibit of wool organised and arranged by Professor Barker, of the Textile Department of the University of Leeds. Fleeces from twenty-seven breeds of pedigree sheep had been most successfully dressed with as little interference with the wool as possible. From these every stage in the manufacturing process had been represented by a sample of material at that stage, ending up with the finished cloth made by woollen or worsted processes. His Royal Highness had been pleased to accept a special length of suiting made from Southdown wool, which it was hoped would be ready to be sent to him shortly, there not being enough finished cloth at the Show to make a suit of clothes.

The Flower Show, which had also been visited by the Prince, had been perhaps one of the best the Society had ever held, the exhibits of flowers and fruit being magnificent and shown to perfection, largely due to the weather, which for that section had been ideal.

The Education Exhibition had also been much appreciated, the exhibits from Cambridge University, the Midland Agricultural and Dairy College, the National Institute for Research in Dairying being excellent and instructive, while the plot of land planted with various cereals—wheat, barley, oats—by the Leicestershire Agricultural Committee had been most instructive.

Turning to the accounts of the Show, these showed a balance on the wrong side of £5,976 5s 9d. This was regrettable, but at the same time it was not discouraging, as it ought to be an incentive to every one to do their best to increase the membership, which, after all, was the foundation upon which the success or otherwise of the Society must rest.

One matter on which the Society must be congratulated was that, although its appeal against assessment to income tax upon profits failed before the Courts, yet the efforts of certain of their members of Council and private members had been successful in obtaining an amendment to the Finance Act of this year, the effect of which was that the payment of income tax on profits or gains on agricultural shows for the future would not be demanded, so that, through its action, not only the Royal, but every agricultural society in the country, would benefit.

He had not touched upon the experimental and research work carried on by the Society, as the report which was in their hands dealt with them all, but in connection with the barley experiments mentioned in paragraph 58 he desired to say that they had 300 to 400 quarters of seed barley to dispose of at the price of 10s. per quarter above market seed price, so that members desiring to use this special seed should make early application to the Norfolk Agricultural Station, St. Faith's, near Norwich.

Regarding the Show to be held at Chester next year, he felt some hesitation in referring to this, because he thought it must be known as Sir Gilbert's Show. He would be President of the Society and Hon. Director of the Show. He had laboured for over five years now in securing a site suitable for the Show and in bringing to an issue what, he hoped, would be a record Show. The site was a splendid one, in close proximity to the city, and with tramcars running very near to the ground. Work was now being carried on in draining the ground, and everything possible was being done to make the Chester Show of 1925 a record one. It would not be Sir Gilbert's fault if it was not so. Might he now beg of them to do all in their power to help him to attain that end.

The Council had again decided to vote £10,000 towards the Prize Fund. Many Breed Societies had expressed their desire to contribute to the Prize Fund in order that they might secure additional classification, and to those Breed Societies the thanks of the Council were due.

He could not pass to the more formal business of the meeting without expressing to the Hon. Director, Sir Gilbert Greenall, on behalf of the Governors, members of Council, and members of the Society, their most heartfelt thanks for the amount of work he had done and was still doing for the Society, not only in the Show department, but in every other section of its work.

During his year of office he had received the greatest kindness from Sir Gilbert, and, indeed, from every member of the Council, to all of whom he begged to tender his most sincere thanks.

Accounts.

The first item on the agenda for the meeting was the presentation of the balance-sheet. This they would find printed in the last volume of the JOURNAL, issued in May of this year, and it would no doubt be their wish that it shall be taken as read.

The Show accounts were in their hands that day, and he would be glad if they would signify their approval of the same.

Adoption of Report.

He called upon Sir Samuel Hordern, the President of the Royal Agricultural Society of New South Wales, to move the adoption of the report, which had been circulated by order of the Council to each governor and member.

Sir SAMUEL HORDERN said that in being asked by the President to move the adoption of the Annual Report, he took it as a very great personal compliment to himself and also to the Royal Agricultural Society of New South Wales, of which he had the honour to be President. Not knowing personally the working of the Royal Agricultural Society of England, it would not be competent for him to pass any remarks about the full report he had had the pleasure of reading. No doubt those present all knew more about it than he did; but, as a visitor to the Show at Leicester, he would like to say that, knowing how shows were run in the Southern Hemisphere and in Australia, it was a marvel to him how from year to year the Show was laid out as it was on new ground and new territory. There was no doubt that the work of the Honorary Director, Sir Gilbert Greenall, was good, and he deserved every praise and credit for it. At the Leicester Show he was struck with the general display of excellence in the cattle, horses, sheep and pigs, but the section that most interested him and at which he marvelled more than anything was that devoted to engineering. No doubt that was the finest section of the Royal Society's Exhibition. The cattle were, as they all knew, penalised by foot-and-mouth disease, but the horse section was up to the usual standard. In Australia they were used to holding their show on a permanent ground, and those present might be interested in the following facts. The Royal Agricultural Society of New South Wales had a Showyard of seventy-four acres at Sydney, where there were permanent buildings to the value of £250,000 belonging to the Society and other permanent structures to the value of £150,000 belonging to manufacturers and those interested in various industries. Passing through their turnstiles at their last Show they had 615,000 people, which was a record. The gate receipts were £41,000. The charge for admission was 2s., and 6d. for children of the age of sixteen downwards. The total revenue reached £83,000, the other £42,000 coming from booth rights and rent for spaces the Society had to dispose of.

The Hon. **Alex. Parker**, in seconding the adoption of the report, said they had all heard with great interest what was done on the other side of the water. In Australia, however, with permanent buildings, they did not have the same drawbacks as the Society did over here. Sir Gilbert Greenall and the Council had been eminently successful in providing a perfect showground, and it was most unfortunate for his old friend Mr. Mathews that he should have been President during the scourge of foot-and-mouth disease. It must have been a source of great anxiety, and he was sure they all sympathised with him. Anybody who had read the report must grasp the fact that the activities of the Council tended very much to increase both in scope and usefulness. There was a great deal that members saw and heard of what the Society was doing, but he was quite sure that there was a great deal more done under the surface which was all to the benefit of agriculture that the members never heard anything about. There were always matters of great importance being dealt with that did not get to the ear of the public. He had great pleasure in seconding the adoption of the report.

Mr. **J. J. Cridlan** ventured to renew the plea that he had made in former years for a concession in the way of reduced fees for entries of live stock, so that the smaller agriculturists might be able to send their animals to the Society's great Show. He was sure that when the entry fees were raised to £3 it was done under necessity. Darlington was a bad year, just as Leicester had been a bad year, but he did think after Newcastle that the Council might have seen their way to accede to the plea he had put forward on previous occasions on behalf of the lesser agriculturists. He believed that the fees to implement exhibitors had been reduced. These, if he remembered rightly, had been raised 100 per cent. after Darlington, but had now been reduced almost to the old figure. The entry fees for cattle, sheep, and pigs had been increased 200 per cent., and the Society were building up an immense reserve by so doing. Agriculturists were passing through bad times. He remembered 1879, when he had been crushed out of agriculture and had had to give it up, almost heart-broken. This year he had lost more than his hay, but, thank God, he could stand that. He did hope that the coming year might prove, as their President had said, a record year for Sir Gilbert

Greenall. Sir Gilbert had a very warm corner in all their hearts. He had this year presided with distinction and despatch over the Smithfield Club, and he was sure that the members of that body appreciated most highly the services Sir Gilbert had rendered during his year of office. No doubt he would tell his colleagues on the Council of the "Royal" of the wrinkles he had picked up while he had been on the Smithfield Club, the mother of all societies. He sincerely hoped that Sir Gilbert would interest himself in increasing the membership of the Royal Agricultural Society in the manner in which he, the speaker, had suggested, as he felt that one of the surest ways of doing this was by the reduction of the entry fees for cattle. There was one other point to which he would refer, and that was with regard to judges, as to which the Society had had representations from the Aberdeen-Angus and other societies. The Royal Show was their House of Lords, and he did hope that animals coming on to the "Royal" from county and local shows would be judged by men of the highest standard. They all wished well to the budding judge, and desired that he should be given opportunities at county and local shows, and he would make his merit known if he were efficient; but it was most important to the breeders, after the care and attention that they bestowed on their animals sent for exhibition at the "Royal," that they should have the best of judges at that show. He did hope that the Council would take that matter into consideration and consult the wishes of the general body of members of the Society. He had had the opportunity of discussing the matter with many of them, and he could assure the Council that they looked upon it as a serious question. He did hope that Sir Gilbert Greenall's year of office would be signalised by concessions on the points he had ventured to raise at that meeting.

The report was then adopted.

Election of President.

Colonel **Cornwallis** said it was perfectly obvious that everybody in that room would like to have the privilege of moving the resolution which had been entrusted to him, and if, therefore, he failed to do justice to it he could take no possible blame, because the excellence of the subject made it impossible so to do. The reason the duty had been entrusted to him was, he believed, because he had been a casual and emergency President of the Society in the year 1906, when the Council had persuaded Sir Gilbert Greenall to undertake those duties which he had so well administered since. That they were right then nobody would now deny, for at that time the Society had no pence and certainly not any pounds, whereas at the present day the reserve was running into six figures. While their Chancellor of the Exchequer had faithfully and well applied the moneys given to him, they all knew—and he hoped there were no Income Tax Commissioners present—that it was Sir Gilbert Greenall who had collected those funds and so enabled the Society to be in the sound flourishing position it was to-day. If they drew a triangle from Newcastle to Cardiff, from Cardiff to Norwich, and from Norwich back to Newcastle, they would find hardly a town of any importance within the triangle to which Sir Gilbert Greenall had not taken the show of the Royal Agricultural Society, and he had always left those towns rather lighter in pocket than he found them. He had, too, always carried away the esteem and regard of all those with whom he had been brought in contact, and if he had earned that esteem and regard in one year, how much more had he earned the esteem of the Council and the Society whom he had served with so much devotion since 1906. He knew, in submitting this motion, that it would have a unanimous and enthusiastic reception, because there was no compliment too high that they could pay to Sir Gilbert. There were very few men indeed whose lot it had been to have the high honour to be asked twice to serve in the office of President. They hoped that Sir

Gilbert would regard it as the highest compliment in their power that they could pay him, and they all hoped that his year of Presidency in his own county would be an unqualified success. In asking him to undertake the dual responsibility next year, he assured him of the gratitude of the Council, not only for what he himself had done, but also for what had been done by Lady Greenall and other members of his family. (Hear, hear.) They rejoiced at the opportunity of having him as President during the ensuing year, and he had the greatest pleasure in moving his election. (Applause.)

Mr. WILLIAM HARRISON, in seconding the motion, said that his colleague Colonel Cornwallis had very rightly stated that it was a privilege to be asked to propose Sir Gilbert Greenall as President of the Society for 1925. He claimed it, also, as a great privilege in being asked to second the motion, and especially did he claim it because, even before Sir Gilbert joined the Council of the "Royal," Sir Gilbert and himself had been associated in agricultural show work, and because he was born in the adjacent county of Lancashire. They had been friends before meeting on the Council of the "Royal," and he must claim, on behalf of Sir Gilbert, that there was no man known to any of them in the country who would have been able to undertake with so much success the position filled by Sir Gilbert Greenall as Honorary Director of the "Royal." He was a man acquainted with agriculture both from the land point of view as well as the animal side ; he was a man who, when he took up any work connected with agriculture, gave up his whole time and the whole of his energy to ensure the success of it. He felt that it was not giving away any secret when he told them that previous to the Derby Show in 1906 Sir Gilbert Greenall, the late Sir Richard Cooper, himself, and one or two other members of the Council, had used their efforts to get the Derby Council to invite the Society there. He thought they all knew that it was due to the generosity of the late Sir Richard Cooper that the Show was held that year, for he guaranteed the Society against loss. Sir Richard undoubtedly, he thought, made this guarantee, knowing that Sir Gilbert Greenall was going to undertake the duties of Honorary Director. Since the Derby Show of 1906 the "Royal" had gone on from success to success and, as Colonel Cornwallis had told them, the Society was now in the fortunate position of having a reserve running into six figures. He was personally delighted that his friend Sir Gilbert had again been offered the Presidency of the Society, for Chester was in the county in which Sir Gilbert had his home. He could assure the meeting that the enthusiasm which was being shown in the adjoining counties and in Wales was great, and it could be confidently expected, and it was almost assured, that the Chester Show would be a record one for the Society, and this in no small sense because Sir Gilbert would be both President and Honorary Director. He had great pleasure in seconding the proposal.

The resolution having been carried with acclamation,

Sir GILBERT GREENALL said he found it somewhat difficult to express to them in adequate words his gratification and thanks for the honour conferred upon him that day, but however inadequate his words might be he could assure them that they were heartfelt and sincere. He was exceedingly proud to be again elected as President, and he could assure them that he would do everything in his power to carry on the work of the Society and do his best to forward its interests. It was a very great honour indeed to be elected a second time, for he believed that such a thing had rarely occurred before, or that the position of President and that of Honorary Director had gone hand in hand. He would endeavour to fulfil the dual rôle to the utmost of his capacity.

Much depended upon the weather during the time of the show, but he hoped that they would be favoured with good weather at Chester next year, and that the result would be a record one. They had a most enthusiastic Local Committee. Before sending out their appeal they had obtained practically all the money they wanted, but the appeal had just gone out, and they hoped to rake in a little more. The people of Cheshire, of the surrounding counties, and of North Wales meant to see to it that the forthcoming show was done in the very best way that any show had been done yet. The Town Clerk of Chester, Mr. Dickson, was most enthusiastic, as also was Major Denton Clark, who was joint Secretary and Honorary Treasurer.

They all regretted that in the Presidential year of his friend Mr. Mathews the Leicester Show was not a great success, for never had there been anyone who had done better spade-work than Mr. Mathews. Mr. Mathews was a very quiet and modest man who did not let them know all that he was doing, but they were well aware of the work that he had done for dairying, and in the Dairy at the "Royal," and they owed him a great debt of gratitude for it. He hoped that next year would not be, in the words of Mr. Mathews, another "lean year," but that it would be one of the Society's "fat and prosperous years." He could not himself see any reason why it should not be, but, as they all knew, a show such as theirs must depend on the weather. Chester had a magnificent railway service, and he thought they should get an enormous gate.

In conclusion, he wanted to thank Colonel Cornwallis and Mr. Harrison for the kind things that they had said about him. He had been at school with Colonel Cornwallis, though he was a little older than himself. They had been at Eton together. His friend Mr. Harrison he had known ever since he had known anyone. He must take that opportunity of thanking them all for the way in which they had supported him for the last eighteen years, and for the great compliment they had paid him that day. (Applause.)

Election of Trustees.

The PRESIDENT announced that the following twelve Trustees had been nominated by the Council in accordance with the bye-laws:—

H.R.H. the Prince of Wales, K.G., York House, St. James's Palace, S.W.1.
H.R.H. the Duke of York, K.G., White Lodge, Richmond.
C. Adeane, C.B., Babraham Hall, Cambridge.
The Duke of Bedford, K.G., Woburn Abbey, Bedfordshire.
Sir J. B. Bowen-Jones, Bart., Council House Court, Shrewsbury.
Col. F. S. W. Cornwallis, Linton Park, Maidstone, Kent.
The Earl of Coventry, Croome Court, Severn Stoke, Worcestershire.
Percy Crutchley, Sunninghill Lodge, Ascot, Berkshire.
The Duke of Devonshire, K.G., Chatsworth, Bakewell.
Sir Gilbert Greenall, Bart., C.V.O., Walton Hall, Warrington.
The Earl of Northbrook, Stratton, Micheldever, Hampshire.
The Hon. Cecil T. Parker, The Grove, Corsham, Wiltshire.

On a show of hands they were declared re-elected as Trustees, to hold office until the next ensuing annual general meeting.

Election of Vice-Presidents.

The Vice-Presidents were elected in a similar manner, their names being:—

C. Coltman-Rogers, Stanage Park, Brampton Bryan.
The Earl of Derby, K.G., Knowsley, Prescot, Lancashire.
Lord Desborough, K.C.V.O., Taplow Court, Taplow, Bucks.
R. M. Greaves, Wern, Portmadoc, North Wales.
Lord Harlech, Brogyntyn, Oswestry.
Ernest Mathews, C.V.O., LL.D., Little Shardeloes, Amersham, Bucks.
The Duke of Portland, K.G., Welbeck Abbey, Worksop.
The Earl of Powis, Powis Castle, Welshpool, Mont.
Frederick Reynard, Sunderlandwick, Driffield, Yorkshire.
The Duke of Richmond and Gordon, K.G., Goodwood, Chichester.
Lieut.-Col. E. W. Stanyforth, C.B., Kirk Hammerton Hall, York.
The Earl of Yarborough, Brocklesby Park, Habrough, Lincolnshire.

Election of Auditors.

It was then moved by Mr. ROBERT VAISEY, seconded by Mr. S. M. HALL, and unanimously resolved :—"That the best thanks of the Society be tendered to Messrs. Jonas M. Webb, Hubert J. Greenwood and Newell P. Squarey for their services as auditors, and that they be re-elected for the ensuing year."

Mr. S. M. HALL said that a few years back he had been present in that room, and an Emergency Committee had been formed to do certain things. There was no doubt that the last four years had been most disastrous to farming, and as their President had told them their membership was on the wane. His accounts had been audited, and he could tell them that he had not made a penny in the four years. He did not know how the present year would turn out until next March, but he had a shrewd suspicion that he would just be able to pay expenses, getting nothing for himself and no interest on his capital. Why was this ? Because under the Corn Production Act they had had their rents raised, some of their rates had been taken off, the poor rate was 2*s.* 4*d.* in the pound, they had to pay more for labour with shorter hours, and they were in a most difficult position. He saw that the Government wanted another million acres put under the plough, but he did not know how it was to be done. He lived in an industrial area and as soon as a boy became useful he went into the pit. He suggested that the Society, which was a powerful body, should consider the matter and see what could be done. Everything tended towards higher prices. To get a horse shod used to cost 2*s.* 8*d.* to 3*s.*, and it now cost 10*s.* Everything seemed to be the same and it could not go on. He and his family had been connected with agriculture all their lives, and unless something was done he would have to go and live in a cottage because if he did not give up his farm it would give him up. That was the state of things in the country.

The PRESIDENT said the Council knew full well what farming had gone through during the last two or three years, but the Royal Agricultural Society was in rather a peculiar position, for, under their Charter, which was a very old one, they could do nothing in any matter which was before Parliament. In connection with the Commission which had been appointed, the Society could do nothing unless they were called upon to give evidence. He thought that this new Committee would probably ask the Society to give evidence, and then they would find out the most useful Members to go before the Committee with a view to doing what they could to help the farmer. No representative of the "Royal" had been asked to serve on this body for the simple reason that the Ministry of Agriculture knew that under the Charter the Society could do nothing with any matter likely to come before Parliament. That was the position. They had great influence with the Ministry and he could assure the meeting that they were doing their very best to alleviate the position which agriculturists had been in for the last two or three years.

Elections to the Council.

In accordance with Bye-law 153 the PRESIDENT reported the names of the following ordinary members of Council who had been elected to represent the several Divisions of the Society included in Group C, so that the meeting might "take cognizance" of their election :—

Cumberland : Joseph Harris, Brackenbrough Tower, Carlisle.
Westmorland : Jacob Wakefield, Sedgwick House, Kendal.
Yorks (East Riding) : T. L. Wickham-Boynton, Burton Agnes Hall.
North Wales : David Davies, M.P., Broneirion, Llandinam, Mont. ; Major Eric J. W. Platt, Gorddinog, Llanfairfechan.
Lincoln : John Evens, Burton, near Lincoln ; C. W. Tindall, Park House, Louth.
Huntingdon : Sir Douglas Newton, K.B.E., M.P., Croxton Park, St. Neots.
Cambridge : Rev. C. H. Brocklebank, Bartlow House, near Cambridge ; J. L. Luddington, Littleport, Ely.

Oxford: Robert Hobbs, Kelmscott, Lechlade.
Kent: Thomas L. Aveling, Pettings Court, Wrotham; Lord Fitzwalter, Goodnestone, near Canterbury.
Warwick: Capt. R. Oliver-Bellasis, Shilton House, Coventry.
Gloucester: Lord Bledisloe, K.B.E., Lydney Park; H. Dent Brocklehurst, Sudeley Castle, Winchcombe.
Glamorgan: Hubert Alexander, The Croft, Sully, near Cardiff.
Somerset: Lord Strachie, Sutton Court, Pensford.
Berkshire: Sir W. A. Mount, Bart., C.B.E., Wasing Place, Reading.
Sussex: Lieut.-Col. Sir Merrik R. Burrell, Bart., C.B.E., Knepp Castle, Horsham; Col. G. Loyd Courthope, M.C., M.P., Whiligh.
Ireland: Bertram H. Barton, Straffan House, Straffan, co. Kildare.

Under Bye-law 149, Mr. W. Lindsay Everard, M.P., of Ratcliffe Hall, Leicester, has been elected as an additional representative on the Council for the Division of Leicestershire.

Thanks to the Retiring President.

No member rising to take advantage of the President's inquiry as to whether any Governor or Member had any suggestions to offer for the Council's consideration,

Sir ARTHUR HAZLERIGG said he had a very pleasant duty to perform, and that was to ask the meeting to pass a cordial vote of thanks to their retiring President (Mr. Mathews) for his services during the past year. It needed no words of his to commend this resolution to the meeting, but when Mr. Parker, in seconding the adoption of the report, commiserated with Mr. Mathews on having a year when foot-and-mouth disease was rife and bad weather made the show a financial failure, he had felt, at the time, on the other hand, how fortunate it had been for the Royal Agricultural Society that they had had a President like Mr. Mathews who had refused to be dismayed by the difficulties before him and had never shown that he was worried or irritated. Mr. Mathews had gone on calmly doing his work, showing them all how to stick it out, and see if they could have the show when the time came. It had been a difficult year, but, in his opinion, they could not have found anyone who could have dealt more successfully with the difficulties that had arisen. In asking them last year to elect Mr. Mathews he had said that he would make a very good President, and he now maintained that for once he had been a true prophet, and he asked the meeting to give Mr. Mathews a most hearty vote of thanks.

Mr. PERCY CRUTCHLEY said that as a very old friend of Mr. Mathews, he deemed it a great privilege to be allowed to second the resolution. Mr. Mathews was a man of varied interests. He thought he first came to the notice of the public as a cricketer, and some of those present looked old enough almost to have succumbed to his wily bowling. Whether as a cricketer, or presiding at the organ, or as a choirmaster, or in the Dairy at the "Royal," or in the position of President of that great Society, he had always distinguished himself, and he had served his term of office that year to the satisfaction and pleasure of all his colleagues on the Council and every member of the Society.

The resolution having been enthusiastically carried,

Mr. MATHEWS, in response, said he hardly knew how to thank them enough. It had been a very, very bad year, but he thought it was far better when they had bad weather to face it smiling. He did not think that any of the members of Council had shown undue anxiety. In fact, until the accounts came out he had not himself given up. The accounts showed that the Show had been financially unsuccessful, but the probability was that that result would do a lot of good. He was afraid he could not promise that they would in future take less entry fees, because the charges at the present time were already below the cost. He would like to thank Sir Gilbert personally for the tremendous kindness and great assistance he had given him during the whole of his official year. It might not be known to many of them that he (Mr. Mathews) happened to be chairman of an association whose offices were next door to the "Royal" in Bedford Square, so that he saw a lot of Sir Gilbert and Sir Gilbert saw a great deal of him, because it was very easy to go from one door to the other and find out if there was anything that he could do. He would especially thank Sir Gilbert for his patience and forbearance to him during the year he had been President. Then nobody knew except those who worked with him what a tremendous assistance their Secretary, Mr. Turner, was. (Hear, hear.) It did not matter what the difficulty was, Mr. Turner always had an answer ready, and was always able to show one the weak or the strong side of proposals that came before him. The staff had been equally keen. He had known them for a great number of years, and they were always willing and anxious to help him in every possible way. He wished to thank Mr. Turner and his staff for all they had done, and he was sure that Sir Gilbert Greenall would agree with him that he was not exaggerating in anything he had said.

He begged to thank them for the very kind vote of thanks which had been accorded him by those present.

Royal Agricultural Society of England.

AWARDS OF PRIZES AT LEICESTER, 1924.

ABBREVIATIONS.

I., First Prize. II., Second Prize. III., Third Prize. IV., Fourth Prize V., Fifth Prize. R.N., Reserve Number. H.C., Highly Commended. C., Commended.

The responsibility for the accuracy of the description or pedigree, and for the eligibility to compete of the animals entered in the following classes, rests solely with the Exhibitors.

Unless otherwise stated, each Prize Animal in the Classes for Horses, Cattle, Goats, Sheep, and Pigs, was "bred by Exhibitor."

HORSES.

Shires.

No. in Catalogue.

Class 1.—*Shire Stallions, born in* 1923.

5 I. (£20.)—A. H. Clark & Son, Moulton Eaugate, Spalding, for **Moulton Harboro'**, bay, bred by Major G. R. Benson, Eastthorpe, Much Wenlock; *s.* Harboro' Nulli Secundus 33231, *d.* Tachbrook Peggy 90636 *by* Monasticon 31658.

11 II. (£10.)—W. H. Neale, Shustoke, Coleshill, Birmingham, for **Coleshill Inventor**, brown, bred by F. D. Bowyer, Maxstoke, Coleshill; *s.* Primley Inventor 35096, *d.* Draughtsman's Queen 97916 *by* Warton Draughtsman 27895.

12 III. (£5.)—Sir Arthur Nicholson, Highfield Hall, Leek, for **Leek Victor**, bay, bred by A. Colclough, Hassall Hall Farm, Sandbach; *s.* Pendley Footprint 37728, *d.* Alsager Princess Royal 96624 *by* Champion's Goalkeeper 30296.

9 IV. (£4.)—James Forshaw & Sons, Carlton-on-Trent, Newark, for **Lincolnshire Friar**, brown, bred by J. W. Needham, Cockerington, Louth; *s.* Colney Friar 37253, *d.* Cockerington Ragged Girl 59865 *by* Ragged Boy 2nd 22700.

1 V. (£3.)—His Majesty The King, Sandringham, for **Martial Manners**, bay; *s.* Field Marshal 5th 35627, *d.* Wootton Manners 2nd 106561 *by* Leek Dauntless 31583.

7 R. N.—William J. Cumber, Theale, Berks., for **Theale Drayman.**

H. C.—4, 14. C.—3, 8, 10.

Class 2.—*Shire Stallions, born in* 1922.

19 I. (£20, & R. N. for Champion.[1])—F. W. Griffin, Boro' Fen, Peterborough, for **Eaton Nunsuch 2nd 39175**, black brown, bred by the Duke of Westminster, G.C.V.O., D.S.O., Eaton Hall, Chester; *s.* Ranton Clansman 36841, *d.* Halstead Duchess 10th 78202 *by* Eaton Nunsuch 27301.

18 II. (£10.)—F. W. Griffin, for **Boro' Corrector 2nd 39105**, bay; *s.* Rowington Recruit 35145, *d.* Menestrel Forest Queen 61179 *by* Norbury Menestrel 23543.

15 III. (£5.)—His Majesty The King, Sandringham, for **Lucky Dog 39250**, bay, bred by A. Luckin, Orfold, Wisborough Green; *s.* Champion's Combination 33096, *d.* Dogdyke Chessie 88237 *by* Carlton What's Wanted 29208.

22 IV. (£4.)—Sir Arthur Nicholson, Highfield Hall, Leek, for **Leek Defiance 39243**, bay; *s.* Pendley Footprint 37728, *d.* Leek Destiny 85505 *by* Coronation 7th 29263.

16 R. N.—J. Morris Belcher, Tibberton Manor, Newport, Salop, for **Tibberton Ryman.**

H. C.—17, 23. C.—21, 24.

Class 3.—*Shire Stallions, born in* 1921.

26 I. (£20, & Champion.[1])—J. Morris Belcher, Tibberton Manor, Newport, Salop, for **Tibberton Leader 39038**, dark bay; *s.* Pendley Leader 35071, *d.* Tibberton Secundus Queen 90699 *by* Babingley Nulli Secundus 26993.

28 II. (£10.)—Sir Bernard Greenwell, Bart., Marden Park, Woldingham, Surrey, for **Quarry Goalkeeper 38964**, bay, bred by Alfred Jones, Quarry Farm, Godstone; *s.* Champion's Goalkeeper 30296, *d.* Aylesford Meadow Girl 65718 *by* Norbury Menestrel 23543.

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[1] Champion Gold Medal, and £5 to the Reserve, given by the Shire Horse Society for the best Stallion in Classes 1 to 3. A Prize of £5 is also given by the Shire Horse Society to the Breeder of the Champion Stallion, provided the Breeder is a Member of the Shire Horse Society, and the Dam of the animal is registered in the Shire Horse Stud Book.

27 III. (£5.)—F. Farnsworth & Sons, Tilton Magna, Leicester, for **Ratcliffe Regent** 38972, black; *s.* Ratcliffe King Cole 36846, *d.* Ratcliffe June Rose 95115 *by* Forage Conqueror 33200.

32 R. N.—D. Gordon Turner, The Villa, Blaby, Leicester, for **Blaby Draughtsman.**

Class 4.—*Shire Fillies, born in* 1923.

44 I. (£20.)—Benjamin Howkins, Bromham, Bedford, for **Brookfields Jonquil,** dark brown, bred by W. M. Gibson, Hargate Manor, Hilton, Derby; *s.* Pendley Record 35951, *d.* Primley Jonquil 94989 *by* Primley Eminence 31745.

42 II. (£10.)—Sir Bernard Greenwell, Bart., Marden Park, Woldingham, Surrey, for **Marden Forest Queen 2nd,** bay; *s.* Champion's Goalkeeper 30296, *d.* Marden Forest Queen 104347 *by* Marden John 32580.

43 III. (£5.)—F. W. Griffin, Boro' Fen, Peterborough, for **Boro' Melody,** bay; *s.* Rowington Recruit 35145, *d.* Ashill Merry 101072 *by* Boro' Menestrel Lad 30202.

40 IV. (£4.)—Basil B. Falkner, Harlestone, Northampton, for **Harlestone Lady 2nd,** brown; *s.* Champion's Umpire 33815, *d.* Harlestone Princess 81640 *by* Woodreeve 24772.

39 V. (£3.)—R. T. Cunningham, Forest Hill, Sandiway, Cheshire, for **Forest Hill Carnation,** bay; *s.* Harboro' Nulli Secundus 33231, *d.* Maria Monk 99119 *by* Norbury Menestrel 23543.

33 R. N.—The Ashby Folville Stud, Ashby Folville, Melton Mowbray, for **Folville Grace.**
H. C.—37. C.—34, 38.

Class 5.—*Shire Fillies, born in* 1922.

51 I. (£20.)—William J. Cumber, Theale, Berks., for **Theale Eveline** 115588, bay, bred by J. R. Whittaker, Elton, Sandbach; *s* Theale Lockinge 35246, *d.* Eccleston Ladyship 97984 *by* Nateby Fellowship 33407.

57 II. (£10.)—Sir Arthur Nicholson, Highfield Hall, Leek, for **Pendley Selina** 115061, bay, bred by D. E. Thomas, Llwynfortune, Nantgaredig; *s.* Herontye Goalkeeper 37496, *d.* Yatesbury Selina 73151 *by* King Cole 7th 26351.

52 III. (£5.)—The Duke of Devonshire, K.G., Chatsworth, Bakewell, for **Chatsworth May Queen** 113887, bay; *s.* Field Marshal 5th 35627, *d.* Chatsworth Marion 84311 *by* Friar Tuck 4th 31447.

50 IV. (£4.)—The Ashby Folville Stud, Ashby Folville, Melton Mowbray, for **Folville Fortune** 114245, bay, bred by Messrs. McTurk, Hallaton; *s.* Ashenden King 31165, *d.* Chatterbox 97434 *by* Royal Oak 14th 30859.

59 R. N.—J. Q. Rowett, Ely Place, Frant, Tunbridge Wells, for **Frant Regina.**
H. C.—55, 58.

Class 6.—*Shire Fillies, born in* 1921.

63 I. (£20.)—C. T. Hoare, Bignell Park, Bicester, for **Bignell Rosamond** 110943, bay, bred by W. G. Hobbs, Chadshunt, Kineton; *s* Pendley Record 35951, *d.* Gaydon Spark, 93214 *by* Cubley Forest King 31366.

65 II. (£10.)—J. J. Stubley, St. Mary's Hall, King's Lynn, for **Maryshall Venus** 112269, bay; *s.* Pendley John 35070, *d.* Timgad's Princess 100508 *by* Timgad 33597.

62 III. (£5.)—Sidney Freckelton, Newton Harcourt, Leicester, for **Broadheath Countess** 111160, bay, bred by J. W. Bourne, Broadheath, Eccleshall; *s.* Pendley Leader 35071, *d.* Broadheath Queen 101874 *by* Bardon Forest Premier 25890.

61 R. N.—Archibald Crawford, Manor Farm, Hungarton, Leicester, for **Quenby Queen.**

Class 7.—*Shire Mares, born in or after* 1920, *with foals at foot.*

67 I. (£20.)—A. H. Clark & Son, Moulton Eaugate, Spalding, for **Moulton Messenger's Princess** 109180, bay, born in 1920; *s.* King's Messenger 31562, *d.* Moulton Victor's Duchess 82337 *by* Moulton Victor King 28590. [Foal *by* Harboro' Nulli Secundus 33231.]

71 II. (£10.)—N. Hocken, Kilkenny, Bibury, Fairford, for **Tibberton May Queen** 110287, bay, born in 1920, bred by J. M. Belcher, Tibberton Manor, Newport; *s.* Tarnacre Keeper 36138, *d* Union Rose 90777 *by* Monnow Drayman 28566. [Foal *by* Maryshall Majestic 36747.]

72 III. (£5.)—Matthew Hubbard, Ivy Stud, Eaton, Grantham, for **Gleadthorpe Modesty** 108193, bay, born in 1920, bred by Arthur Grimes, Gleadthorpe Grange, Warsop; *s.* Champion Abbot 35517, *d.* Gleadthorpe Gloaming 78096 *by* Mimms Champion 26462. [Foal *by* Pendley Gold Mine 38949.]

Class 8.—*Shire Mares, born in or before* 1919, *with foals at foot.*

79 I. (£20, & Champion.[1])—G. R. C. Foster, Anstey Hall, Trumpington, Cambridge, for **Erfyl Lady Grey** 88450, grey, born in 1915, bred by William Vaughan, Hafod, Llanerfyl, Welshpool; *s.* Moors Kitchener 25443, *d.* Erfyl Lady White 88451 *by* Moors Chef 22594. [Foal *by* Histon Menestrel 37510.]

81 II. (£10, & R. N. for Champion.[1])—F. S. Freckelton, Narborough Wood House, Enderby, Leicester, for **Pendley Lady** 99582, born in 1917, bred by J. G. Williams, Pendley Manor, Tring; *s.* Champion's Goalkeeper 30296, *d.* Snelston Lady 72449 *by* Slipton King 26692. [Foal *by* Field Marshal 4th 35627.]

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[1] Champion Gold Medal, and £5 to the Reserve, given by the Shire Horse Society for the best Mare or Filly in Classes 4 to 8. A Prize of £5 is also given by the Shire Horse Society to the Breeder of the Champion Mare or Filly, provided the Breeder is a Member of the Shire Horse Society, and the Dam of the animal is registered in the Shire Horse Stud Book.

85 III. (£5.)—Matthew Hubbard, Ivy Stud, Eaton, Grantham, for **Cippenham Monica** 73942, bay, born in 1912, bred by E. W. Headington, Cippenham Court, Slough; *s.* Dowsby Forest King 27253, *d.* Cippenham Mischief 59817 *by* Norbury Menestrel 23543. [Foal *by* Champion's Goalkeeper 30296.]

75 IV. (£4.)—J. H. Appleby & Sons, Stud Farm, Tixall, Stafford, for **Bridgford Briar Queen** 101841, bay, born in 1917, bred by H. Hidderley, Creswell, Stafford; *s.* Normanby Briar King 32672, *d.* Bridgford Queen of Forest 84130 *by* Ivy Forest Chief 23390 [Foal *by* Chirkenhill Clansman 38106.]

84 V. (£3.)—Allan Holm, The Grange, Tilton, Leicester, for **Tilton June Rose** 100505, bay, born in 1918; *s.* Babingley Nulli Secundus 26993, *d.* Tilton Jenny 83247 *by* Tatton Dray King 23777. [Foal *by* Monks Green Friar 35891.]

88 R. N.—Owen Williams, Crossways, Cowbridge, for **Torrells Bohemian Girl**.
C.—78, 87.

Class 9.—*Shire Colt Foals, the produce of Mares entered in Classes* 7 *or* 8.[1]

97 I. (£10.)—Allan Holm, The Grange, Tilton, Leicester, for **Tilton Friar**, bay, born March 19; *s.* Monks Green Friar 35891, *d.* Tilton June Rose 100505 *by* Babingley Nulli Secundus 26993.

89 II. (£5.)—J. H. Appleby & Sons, Stud Farm, Tixall, Stafford, for bay, born April 24; *s.* Chirkenhill Clansman 38106, *d.* Bridgford Briar Queen 101841 *by* Normanby Briar King 32672.

98 III. (£3.)—Matthew Hubbard, Ivy Stud, Eaton, Grantham, for bay, born April 3; *s.* Pendley Gold Mine 38949, *d.* Gleadthorpe Modesty 108193 *by* Champion Abbot 35517.

Class 10.—*Shire Filly Foals, the produce of Mares entered in Classes* 7 *or* 8.[1]

109 I. (£10.)—N. Hocken, Kilkenny, Bibury, Fairford, for **Kilkenny Pamela**, bay, born March 12; *s.* Maryshall Majestic 36747, *d.* Tibberton May Queen 110287 *by* Tarnacre Keeper 36138.

102 II. (£5.)—A. H. Clark & Son, Moulton Eaugate, Spalding, for bay, born April 6; *s.* Harboro' Nulli Secundus 33231, *d.* Moulton Messenger's Princess 109180 *by* King's Messenger 31562.

110 III. (£3.)—Matthew Hubbard, Ivy Stud, Eaton, Grantham, for bay, born Feb. 22; *s.* Champion's Goalkeeper 30296, *d.* Cippenham Monica 73942 *by* Dowsby Forest King 27253.
H. C.—103, 107, 112.

Class 11.—*Shire Geldings, by registered sires, born in* 1921.[1]

118 I. (£20.)—Milton Schofield, Moss Farm, Alkrington, Middleton Junction, for **Alkrington Champion**, bay, bred by I. Cartwright, Ivy House, Hixon, Stafford; *s.* Bradgate Champion 36332, *d.* Smiler 100145 *by* Bradgate Perfection 33050.

115 II. (£10.)—Frederick W. Foster, Marsh Farm, Etwall, Derby, for **Prince**, bay, bred by T. Blackshaw, The Hurst, Appleton, Cheshire; *s.* Bignall Evening Star 35407.

114 III. (£5.)—B. A. Cleminson, Rawcliffe Manor, York, for **Rawcliffe Blue Boy**, bay, bred by Walter Quenby, Oakley, Bedford; *s.* Ashenden King 31165, *d.* Bluebell 80510 *by* Ashwell Confucius 25076.

116 R. N.—Benjamin Howkins, Bromham, Bedford, for **Coleshill Jupiter**.
H. C.—117.

Class 12.—*Shire Geldings, by registered sires, born in or before* 1920.[1]

124 I. (£20.)—George G. Marsh & Son, Mount Pleasant, Speke, Liverpool, for **Captain**, bay, born in 1919, bred by F. C. Bush, Marston-on-Dove; *s.* Lymm Rival 34941, *d.* Wesson Duchess 96281 *by* Delamere 27239.

123 II. (£10.)—Hugh C. Holm, Carlton Curlieu, Leicester, for **Captain**, black, born in 1920; *s.* Halstead Rob Roy 29449, *d.* Curlieu Dray Queen 84491 *by* Tatton Dray King 23777.

125 III. (£5.)—E. Patchett, Gratton Road, Bradford, for **Bradford Lad**, bay, born in 1919, bred by W. Newhouse, Ancliffe Hall, Slyne; *s.* Newark Coming King 34192, *d.* Brook Vale Pavlova 80696 *by* Castlehayes Charmer 26025.

120 IV. (£4.)—Charles E. Berry, Middleton, Market Harborough, for **Surprise**, bay, born in 1917, bred by S. Brown, Saddington, Leicester; *s.* Southill Rival 31833.

121 R. N.—Frederick W. Foster, Marsh Farm, Etwall, Derby, for **Drayman**.
H. C.—126.

Clydesdales.

Class 13.—*Clydesdale Stallions, born in* 1923.

135 I. (£20.)—Andrew M. Montgomery, Nether Hall, Castle Douglas, for bay, bred by J. P. Sleigh, St. John's Wells, Fyvie; *s.* Craigie Litigant 19071, *d.* Wells Bess 54920 *by* Kismet 18417.

131 II. (£10.)—James Dickie, Kelton House, Dumfries, for light bay; *s.* Dunure Footprint 15203, *d.* Nyasa Baroness 54462 *by* High Tension 19161

129 III. (£5)—David Adams, Auchencraig, Dumbarton, for **Trouble**, bay, bred by Alexander Caldwell, Dunure Mains, Ayr; *s.* Auchenflower 12007, *d.* Dunure Mistletoe 53524 *by* Dunure Monarch 158117.

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[1] Prizes given by the Shire Horse Society.

133 IV. (£4.)—JAMES KILPATRICK, Craigie Mains, Kilmarnock, for **Craigie Exquisite**, bay, bred by Peter McAulay, Bow Farm, Greenock; *s.* Craigie Excellence 19971, *d.* Craigie Mermaid *by* Craigie Litigant 19071.

132 R. N.—JAMES GRAY, Birkenwood, Kippen Station, for **Wireless**.

H. C.—136, 138.

Class 14.—*Clydesdale Stallions, born in* 1922.

143 I. (£20, & Champion.[1])—ANDREW M. MONTGOMERY, Nether Hall, Castle Douglas, for **Weathervane**, bay, bred by M. C. Lusk, Airieland, Castle Douglas; *s.* Dunure Footprint 15203, *d.* Vera of Airieland 41360 *by* Baron Kelvin 13991.

140 II. (£10, & R. N. for Champion.[1])—ALBERT J. MARSHALL, Bridgebank, Stranraer, for **Bridgebank Masterpiece 20881**, brown, bred by Alex. Niven, Collairnie, Ladybank, Fife; *s.* Dunure Footprint 15203, *d.* Alice Allan 37364 *by* Allandale 12418.

139 III. (£5.)—JAMES KILPATRICK, Craigie Mains, Kilmarnock, for **Craigie Essential**, bay, bred by James Symington, Kersepark, Hollybush; *s.* Craigie Litigant 19071, *d.* Nell of Kerse 44168 *by* Montrave Mariner 17393.

142 R. N.—ANDREW M. MONTGOMERY, for **Bonnie Baron**.

Class 15.—*Clydesdale Stallions, born in* 1921.

151 I. (£20.)—DOUGLAS D. MURRAY, The Dene, Seaham Harbour, for **Fyvie Discovery 20755**, brown, bred by James Durno, Rothiebrisbane, Fyvie; *s.* Birkenwood 19350, *d.* Lady Sylvia 47612 *by* Dunure Footprint 15203.

150 II. (£10.)—ANDREW M. MONTGOMERY, Nether Hall, Castle Douglas, for **Ross 20943**, brown, bred by John Finlay, The Ross, Kirkcudbright; *s.* Dunure Footprint 15203, *d.* Maiden 45180 *by* Mendel 14763.

145 III. (£5.)—JAMES GRAY, Birkenwood, Kippen Station, for **Ditto 20734**, brown; *s.* Dunure Footprint 15203, *d.* Molly of Birkenwood 41028 *by* Bonnie Buchlyvie 14032.

146 R. N.—JAMES KILPATRICK, Craigie Mains, Kilmarnock, for **Petty Monarch**.

H. C.—152.

Class 16.—*Clydesdale Stallions, born in or before* 1920.[2]

157 I. (£20.)—ROBERT PARK, Brunstane, Portobello, for **Vindictive 19886**, bay, born in 1916, bred by George Aitken, jun., Traprain, Prestonkirk; *s.* Dunure Footprint 15203, *d.* Lady Vesta 34704 *by* Braidlie Chief 13381.

155 II. (£10.)—ANDREW M. MONTGOMERY, Nether Hall, Castle Douglas, for **Carry On 19655**, bay, born in 1917, bred by Rev. J. J. Calder, Manse of Cairney, Huntly; *s.* Signet 16816, *d.* Daisy of Bruckles 27241 *by* Everlasting 11331.

154 III. (£5.)—ALBERT J. MARSHALL, Bridgebank, Stranraer, for **Maritza 18829**, black, born in 1914, bred by J. P. Sleigh, St. John's Wells, Fyvie; *s.* Dunure Footprint 15203, *d.* Naida 27195 *by* Barons Pride 9122.

153 R. N.—ALBERT J. MARSHALL, for **Bridgebank Milbourne**.

Class 17.—*Clydesdale Fillies, born in* 1923.

163 I. (£20.)—MISS E. M. REITH, Kennerty Farm, Peterculter, Aberdeenshire, for **Irene**, bay; *s.* Fyvie Sensation 20042, *d.* Dunure Destiny 54865 *by* Dunure Essential 19102.

159 II. (£10.)—JAMES GRAY, Birkenwood, Kippen Station, for **Ginger Snap**, chestnut; *s.* Botha 19026, *d.* Miranda 50312 *by* Dunure Footprint 15203.

161 III. (£5.)—J. E. KERR, Harviestoun Castle, Dollar, for **Harviestoun Prudence**, chestnut; *s.* Botha 19026, *d.* Harviestoun Princess *by* Dunure Footprint 15203.

165 R. N.—H. E. ROBERTS, Mereside, Bromfield, Carlisle, for **Mereside Jewel**.

H. C.—158.

Class 18.—*Clydesdale Fillies, born in* 1922.

168 I. (£20.)—JAMES KILPATRICK, Craigie Mains, Kilmarnock, for **Cragie Ella**, brown, bred by James Cairns, Abercrombie, St. Monance; *s.* Craigie Litigant 19071, *d.* Abercrombie Emma 47287 *by* Dunure Footprint 15203.

172 II. (£10.)—ROBERT WALKER, Langlands, Kilmaurs, for **Langland's Blossom**, brown; *s.* Dunure Footprint 15203, *d.* Lady Victor *by* Johnston Victor.

170 III. (£5.)—WILLIAM and JOHN REITH, Kennerty Farm, Peterculter, for **Dunure Real**, light brown, bred by Robert Park, Brunstane, Portobello; *s.* Dunure Footprint 15203, *d.* Queenie of Brunstane 52802 *by* Auchenflour 12007.

167 R. N.—JAMES GRAY, Birkenwood, Kippen Station, for **Innocence**.

H. C.—171.

Class 19.—*Clydesdale Fillies, born in* 1921.

174 I. (£20, & R. N. for Champion.[3])—JAMES GRAY, Birkenwood, Kippen Station, for **Rue Mayflower**, black, bred by Robert Dalziel, Rue, Auldgirth; *s.* Dunure Footprint 15203, *d.* Noss Aida 44899 *by* Master David 15943.

173 II. (£10.)—WILLIAM BROWN, Craigton, Bishopton, for **Craigton Helenora**, brown; *s.* Craigie Litigant 19071, *d.* Farleton Lady Alice 47512 *by* Dunure Footprint 15203.

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[1] Champion Silver Medal given by the Clydesdale Horse Society for the best Stallion in Classes 13 to 16.

[2] Prizes given by the Clydesdale Horse Society.

[3] Champion Silver Medal given by the Clydesdale Horse Society for the best Mare or Filly in Classes 17 to 20.

176 **III. (£5.)**—DOUGLAS D. MURRAY, The Dene, Seaham Harbour, for **Queen of the Law** black; *s.* Craigie Litigant 19071, *d.* Queen of the Ring 46088 *by* Dunure Footprint 15203.

175 **R. N.**—J. E. KERR, Harviestoun Castle, Dollar, for **Harviestoun Florence.**

Class 20.—*Clydesdale Mares, with foals at foot.*

177 **I. (£20, & Champion.[1])**—WILLIAM BROWN, Craigton, Bishopton, for **Farleton Lady Alice** 47512, black, born in 1914, bred by Messrs. Donald, Lethen, Fyvie; *s.* Dunure Footprint 15203, *d.* Chrissy Sleigh 35206 *by* Everlasting 11331. [Foal *by* Craigie McQuaid 20724.]

Class 21.—*Clydesdale Geldings, by registered sires, born in or before* 1921.[2]

186 **I. (£20.)**—WILLIAM MATHER, Milne Graden Mains, Coldstream, for **Sergeant Murphy,** bay, born in 1919; *s.* Mendel 14763, *d.* Queen of Bombie 46112 *by* Signet 16816.

190 **II. (£10.)**—ROBERT WILSON, West Hurlet, Nitshell, Renfrewshire, for **What's Wanted,** black, born in 1918, bred by John McDonald, Saucher, Perth; *s.* Lofty Pride 18423.

185 **III. (£5.)**—JOHN W. KYLE, Barskiven Farm, Paisley, for **Johnny,** bay, born in 1919, bred by Robert Pollock, Logans Well, Newton Mearns; *s.* Lofty Pride 18423, *d.* Logan's Well Flora 43859 *by* King's Herald 13048.

187 **R. N.**—SCOTTISH CO-OPERATIVE WHOLESALE SYNDICATE, LTD., 95 Morrison Street, Glasgow, for **Bob.**

H. C.—183.

Suffolks.

Class 22.—*Suffolk Stallions, born in* 1923.

191 **I. (£20.)**—CAPTAIN C. E. FITZ ROY, The Lodge Farm, Coney Weston, Bury St. Edmunds, for **Coney Weston Scarab** 5524; *s.* Sudbourne Arabi 3287, *d.* Starlight 2nd 10218 *by* Sudbourne Peter Pan 4214.

195 **II. (£10.)**—P. C. VESTEY, Easton Park, Wickham Market, for **Sudbourne Brigadier** 5505, bred by the Exors. of the late Lord Manton, Sudbourne Hall, Suffolk; *s.* Sudbourne Beau Brocade 4235, *d.* Ringshall Cavell 10080 *by* Freston Marshall 4420.

193 **III. (£5.)**—F. W. HORLOCK, Mistley House, Mistley, Essex, for **Hercules**; *s.* Sudbourne Beau Brocade 4235, *d.* Bawdsey Scotia 10377 *by* Earl Gray 4217.

194 **R. N.**—SIR CUTHBERT QUILTER, BART., Bawdsey Manor, Woodbridge, for **Bawdsey Baron.**

Class 23.—*Suffolk Stallions, born in* 1922.

202 **I. (£20, & R. N. for Champion.[3])**—ARTHUR T. PRATT, Morston Hall, Trimley, Ipswich, for **Morston Beau Brummel** 5479, bred by J. T. Lockhart, Ferry Farm, Sudbourne; *s.* Sudbourne Beau Brocade 4235, *d.* Red Court Diamond 10100 *by* Harvestman 4439.

207 **II. (£10.)**—W. WOODGATE, Fairfield, Framlingham, for **Framlingham Don** 5583; *s.* Durban 4678, *d.* Framlingham Smart 9140 *by* Badingham Upstart 3847.

199 **III. (£5.)**—FRANK J. CULLEN, Cressing Temple, Braintree, for **Cressing Crusader** 5433; *s.* Framlingham Allenby 4826, *d.* Bawdsey Queen 9913 *by* Bawdsey Hay 4188.

203 **IV. (£4.)**—SIR CUTHBERT QUILTER, BART., Bawdsey Manor, Woodbridge, for **Bawdsey Sultan** 5480; *s.* Bawdsey Hay 4188, *d.* Bawdsey Sultana 7061 *by* Sudbourne Arabi 3287.

200 **R. N.**—LT.-COL. W. E. HARRISON, O.B.E., Wychnor Park, Burton-on-Trent, for **Wychnor Herman.**

H. C.—204, 205.

Class 24.—*Suffolk Stallions, born in* 1921.

211 **I. (£20.)**—A. T. PRATT, Morston Hall, Trimley, Ipswich, for **Buckanay Allington** 5282, bred by E. H. Williams, Alderton, Suffolk; *s.* Morston Connaught 4590, *d.* Beauty of Batt 9311 *by* Rendlesham Steward 4137.

213 **II. (£10.)**—T. W. WILSON & SONS, LTD., Hadleigh, Suffolk, for **Ashmoor Cornsheaf** 5286, bred by A. Carlyle Smith, Sutton Hall, Woodbridge; *s.* Morston Connaught 4590, *d.* Ashmoor Bee 9459 *by* Sudbourne Arab 3309.

212 **III. (£5.)**—A. T. PRATT, for **Buckanay Orator** 5284, bred by E. H. Williams, Alderton, Suffolk; *s.* Morston Connaught 4590, *d.* Hush 8291 *by* Bawdsey Marshal Ney 3385.

209 **R. N.**—CAPT. R. C. DURWARD, Berden Hall, Stansted, for **Berden Bacchus.**

Class 25.—*Suffolk Stallions, born in or before* 1920.[4]

217 **I. (£20, & Champion.[3])**—A. T. PRATT, Morston Hall, Trimley, Ipswich, for **Shotley Counter Part** 4903, born in 1919, bred by H. W. Packard, Shotley; *s.* Sudbourne Beau Brocade 4235, *d.* Sudbourne Matilda 7123 *by* Sudbourne Counter 3478.

215 **II. (£10.)**—A. PRESTON JONES, Mickleover House, Derby, for **Horstead Punchinello** 5096, born in 1920, bred by Mrs. G. C. Nevile, Horstead Hall, Norwich; *s.* Sudbourne Beau-Brocade 4235, *d.* Nimble 8767 *by* Cicero 4135.

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[1] Champion Silver Medal given by the Clydesdale Horse Society for the best Mare or Filly in Classes 17 to 20.

[2] Prizes given by the Clydesdale Horse Society.

[3] The "Coronation" Perpetual Silver Challenge Cup, value £50, given by the Suffolk Horse Society for the best Stallion in Classes 22 to 25.

[4] Prizes given by the Suffolk Horse Society.

220 III. (£5.)—William Woodgate, Fairfield, Framlingham, for **Blackmore Hopeful 5206**, born in 1920, bred by E. H. Sikes, Ingatestone, Essex; *s.* Bawdsey Sickleman 4023, *d.* Grange Mermaid 8995 *by* Sudbourne Arabi 3287.

214 R. N.—Lt.-Col. W. E. Harrison, O.B.E., Wychnor Park, Burton-on-Trent, for **Bawdsey Wassail.**

Class 26.—*Suffolk Fillies, born in* 1923.

223 I. (£20.)—Captain C. E. FitzRoy, The Lodge Farm, Coney Weston, Bury St. Edmunds, for **Coney Weston Doreen 12440**; *s.* Sudbourne Arabi 3287, *d.* Daisy 3rd 8229 *by* Eldo Starkey 3762.

221 II. (£10.)—W. N. L. Champion, Riddlesworth Hall, Thetford, for **Riddlesworth Barmaid 12480**, bred by the Exors. of the late Lord Manton, Sudbourne Hall, Orford; *s.* Sudbourne Beau Brocade 4235, *d.* Sudbourne Armada 8519 *by* Sudbourne Peter 3955.

227 III. (£5.)—P. C. Vestey, Easton Park, Wickham Market, for **Polstead Darling 12414**, bred by J. and S. Daking, Polstead, Essex; *s.* Godwick Goldstone 4861, *d.* Polstead Doris 10410 *by* Sudbourne Arion 4618.

228 IV. (£4.)—T. W. Wilson & Sons, Ltd., Hadleigh, Suffolk, for **Hadleigh Sweet Briar 12463**; *s.* Sudbourne Bellum 4631, *d.* Hadleigh Rose 10378 *by* Morston Wallace 3987.

222 R. N.—Viscount Elveden, C.B., C.M.G., M.P., Pyrford Court, Woking, for **Pyrford Patricia.** H. C.—226.

Class 27.—*Suffolk Fillies, born in* 1922.

232 I. (£20, & R. N. for Champion.[1])—A. T. Pratt, Morston Hall, Trimley, Ipswich, for **Morston Gold Signet 12073**; *s.* Morston Gold Guard 4234, *d.* Leda's Queen 7772 *by* Bawdsey Harvester 3079.

235 II (£10.)—A. Carlyle Smith, Sutton Hall, Woodbridge, for **Walpole Majolica 11707**, bred by Miss M. Gillett, Walpole Hatch, Halesworth; *s.* Stamford Rufus 4712, *d.* Walpole Monica 8949 *by* Sudbourne Arabi 3287.

233 III. (£5.)—Sir Cuthbert Quilter, Bart., Bawdsey Manor, Woodbridge, for **Bawdsey Stella 12089**; *s.* Framlingham Allenby 4826, *d.* Bawdsey Sunbeam 7044 *by* Bawdsey Harvester 3076.

238 IV. (£4.)—P. C. Vestey, Easton Park, Wickham Market, for **Sudbourne Sybil 12146**, bred by the late Lord Manton, Sudbourne Hall, Orford; *s.* Sudbourne Merryman 5062, *d.* Sudbourne Cybele 10001 *by* Sudbourne Beau Brocade 4235.

236 R. N.—J. T. Thistleton-Smith, Pudding Norton Hall, Fakenham, for **Nortonean Belle.**

H. C.—230, 234. C.—237.

Class 28.—*Suffolk Fillies, born in* 1921.

241 I. (£20, & Champion.[1])—Sir Cuthbert Quilter, Bart., Bawdsey Manor, Woodbridge, for **Bawdsey Sappho 11350**; *s.* Earl Gray 4219, *d.* Bawdsey Minerva 6449 *by* Bawdsey Harvester 3076.

246 II. (£10.)—P. C. Vestey, Easton Park, Wickham Market, for **Sudbourne Starlight 11500**, bred by the late Lord Manton, Sudbourne Hall, Orford; *s.* Sudbourne Beau Brocade 4235, *d.* Sudbourne Moonlight 8023 *by* Sudbourne Peter 3955.

243 III. (£5.)—Sir Cuthbert Quilter, Bart., for **Bawdsey Valeta 11349**; *s.* Bawdsey Hay 4188, *d.* Bawdsey One Step 8665 *by* Bawdsey Harvest King 3879.

245 R. N.—J. T. Thistleton-Smith, Pudding Norton Hall, Fakenham, for **Nortonean Darkness.**

H. C.—240. C.—244.

Class 29.—*Suffolk Mares, with foals at foot.*

252 I. (£20.)—Sir Cuthbert Quilter, Bart., Bawdsey Manor, Woodbridge, for **Bawdsey Porcelain 10404**, born in 1919; *s.* Earl Gray 4219, *d.* Bawdsey China Doll 2nd 7252 *by* Bentley War Cry 3028. [Foal *by* Framlingham Allenby 4826.]

253 II. (£10.)—A. Carlyle Smith, Sutton Hall, Woodbridge, for **Ashmoor Bessie 10367**, born in 1919; *s.* Sudbourne Arab 3309, *d.* Ashmoor Belle *by* Taylor's Majestic 3327. [Foal *by* Shotley Harvest Chief 4893.]

255 III. (£5.)—P. C. Vestey, Easton Park, Wickham Market, for **Sudbourne Gem 10872**, born in 1920, bred by the late Lord Manton, Sudbourne Hall, Orford; *s.* Sudbourne Beau Brocade 4235, *d.* Diamond 9611 *by* Turner's Goldfinder 3011. [Foal *by* Morston Cider Cup 4520.]

250 IV. (£4.)—A. Preston Jones, Mickleover House, Derby, for **Sudbourne Lowry**, bred by Kenneth M. Clark, Sudbourne Hall, Orford; *s.* Sudbourne Bellman 4153, *d.* Sudbourne Laurel 7668, *by* Sudbourne Arabi 3287. [Foal *by* Freston Khedive 4486.]

H. C.—256. C.—249.

Class 30.—*Suffolk Colt Foals, the produce of Mares in Class* 29.[2]

260 I. (£10.)—A. Carlyle Smith, Sutton Hall, Woodbridge, for **Ashmoor Peterkin**, born Feb. 17; *s.* Shotley Harvest Chief 4893, *d.* Ashmoor Bessie 10367 *by* Sudbourne Arab 3309.

259 II. (£5.)—Sir Cuthbert Quilter, Bart., Bawdsey Manor, Woodbridge, for foal born Feb. 16; *s.* Framlingham Allenby 4826, *d.* Bawdsey Porcelain 10404 *by* Earl Gray 4219.

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[1] Champion Prize of £10 given by the Suffolk Horse Society for the best Mare or Filly in Classes 26 to 29.

[2] Prizes given by the Suffolk Horse Society.

Class 31.—*Suffolk Filly Foals, the produce of Mares in Class* 29.[1]

266 I. (£10.)—A. G. Welch, Worlingham, Beccles, for foal born Feb. 23; *s.* Sudbourne Foch 4869, *d.* La Belle Rouge 10611 *by* Sudbourne Beauchief 4215.

262 II. (£5.)—Lt.-Col. W. E. Harrison, O.B.E., Wychnor Park, Burton-on-Trent, for **Wychnor Wench**, born April 17; *s.* Bawdsey Wassail 5132, *d.* Bawdsey Wench 10825 *by* Bawdsey Varlet 4390.

263 III. (£3.)—A. Preston Jones, Mickleover House, Derby, for foal born May 15; *s.* Preston Khedive 4486, *d.* Sudbourne Lowry 8888 *by* Sudbourne Bellman 4153.

Percherons.

Class 33.—*Percheron Stallions, born in* 1923.

274 I. (£20.)—S. M. Dennis, Sharnden Manor, Mayfield, Sussex, for **Sharnden Achille** B 233, black grey; *s.* Lagor B 1, *d.* Quartelette B 19 *by* Limon F 99810.

271 II. (£10.)—Chivers & Sons, Ltd., Histon, Cambridge, for **Histon Brilliant 2nd** B 279, grey; *s.* Brilliant H B 42, *d.* Petronne B 176 *by* Japon F 84819.

270 III. (£5.)—Lt.-Col. Sir Merrik R. Burrell, Bart., C.B.E., Knepp Castle, Horsham, for **Knepp Xanthos** B 266, dark grey; *s.* Misanthrope B 5, *d.* Potence B 30 *by* Japon F 84819.

273 IV. (£4.)—Thomas Cook, Hobland House, Bradwell, Great Yarmouth, for **Hobland Emperor** B 251, grey; *s.* Perfection B 46, *d.* Trabe B 355 *by* Omer F 119732.

268 R. N.—Charles P. Ackers, Huntley Manor, Gloucester, for **Huntley Piers.**

Class 34.—*Percheron Stallions, born in* 1922.

278 I. (£20.)—Chivers & Sons, Ltd., Histon, Cambridge, for **Aspic** B 277, grey, bred by M. Hunault, La Haye, Avézé, France; *s.* Sabreur F 136429, *d.* Konsigne F 91567 *by* Golta F. 71389.

279 II. (£10, & Champion.[2])—Thomas Cook, Hobland House, Bradwell, Great Yarmouth, for **Hobland Demon** B 218, grey; *s.* Perfection B 46, *d.* Quanuse B 57 *by* Lycaon F 103544.

283 III. (£5, & R. N. for Champion.[2])—Robert E. Parker, Easton, Norwich, for **Greyling Warrior** B 170, grey, bred by Mrs. R. Emmet, Moreton Morrell; *s.* Rhum 53, *d.* Semiramis B 1351 *by* Lichas F 98731.

282 R. N.—Henry R. Overman, Brampton Ash, Market Harborough, for **Hilderstone Watteau.**

Class 35.—*Percheron Stallions, born in* 1921.

285 I. (£20, & R. N. for Champion.[3])—Chivers & Sons, Ltd., Histon, Cambridge, for **Villabon** B 276, grey, bred by M. Levasseur, la Thibaudellerie, Rouperroux, France; *s.* Rectorat F 135318, *d.* Quornélie F 130968 *by* Lagor F 100512.

287 II. (£10.)—Thomas Cook, Hobland House, Bradwell, Great Yarmouth, for **Hobland Bellman** B 160, grey; *s.* Perfection B 46, *d.* Octavie B 58 *by* Kaisson F 97384.

290 III. (£5.)—Aubrey W. Handy, Haycroft, Sherborne, Northleach, Glos., for **River Voussoir** B 132, dark grey; *s.* Onuphre B 43, *d.* Doris B 127 *by* Artemus A 73339.

284 R. N.—Chivers & Sons, Ltd., for **Verdun.**

Class 36.—*Percheron Stallions, born in or before* 1920.[4]

297 I. (£20, & Champion.[3])—Robert E. Parker, Easton, Norwich, for **Salax** B 157, grey, born in 1918, bred by M. Chaumont La Baudranniere, Revillon, Mortagne, France; *s.* Instar F 78857, *d.* Sentinelle F 62750 *by* Castel F 48964.

294 II. (£10.)—Lt.-Col. H. E. Hambro, C.B.E., Coldham Hall, Bury St. Edmunds, for **Quapulet** B 31, dark grey, born in 1916, bred by M. Crenier, Mottais, Coudray au Perche, France; *s.* Languier F 100640, *d.* Hermine F 73775 *by* Gaibet F 57895.

296 III. (£5.)—Robert E. Parker, for **Newport** 20, black, born in 1915, bred by George Lane, Bar V Ranch, Alberta, Canada; *s.* Halifax F 75867, *d.* Ginestine F 69270 *by* Deubonnet F 51671.

293 R. N.—Co-operative Wholesale Society, Ltd., Estate Office, Coldham, Wisbech, for **Salammbo.**

Class 37.—*Percheron Fillies, born in* 1923.

302 I. (£20.)—Dinam Estates Company, Llandinam, Mont., for **Dinam Fouriciéré** B. 580, dark grey; *s.* Prescient B 17, *d.* Sourdiere B 319 *by* Nigaud F 111585.

308 II. (£10.)—Charles Wilson, Riseholme, Lincoln, for **Riseholme Siren** B 504, grey; *s.* Misanthrope B 5, *d.* Siamoise B 328 *by* Nihiliste F 117694.

303 III. (£5.)—Dinam Estates Company, for **Dinam Quotité** B 581, grey; *s.* Prescient B 17, *d.* Quoze B 317 *by* La Pereau F 100259.

307 IV. (£4.)—Charles Wilson, for **Riseholme Nortia** B 505, black; *s.* Lagor B 1, *d.* Nodale B 22 *by* Joinville F 88611.

305 R. N.—Major Jack F. Harrison, Kingswalden, Bury, Hitchin, for **Kingswalden Xenia.**

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[1] Prizes given by the Suffolk Horse Society.

[2] Perpetual Silver Challenge Cup, value Fifty Guineas, given by the British Percheron Horse Society for the best Percheron Stallion in Class 34 born in Great Britain.

[3] Perpetual Silver Challenge Cup, value Fifty Guineas, given by the British Percheron Horse Society for the best Percheron Stallion in Classes 33 to 36.

[4] Prizes given by the British Percheron Horse Society.

Class 38.—*Percheron Fillies, born in* 1922.

310 I. (£20, & Champion.[1])—THOMAS COOK, Hobland House, Bradwell, Great Yarmouth, for Hobland Diana B 498, grey; *s.* Perfection B 46, *d.* Octavie B 58 *by* Kaisson F 97384.

309 II. (£10.)—CHIVERS & SONS, LTD., Histon, Cambridge, for Argenteuse B 591, dark grey, bred by M. Gasselin, La Martinière, Bretoncelles, France; *s.* Remords F 133354, *d.* Litorne F 100791 *by* Hérold F 74198.

315 III. (£5, & R. N. for Champion.[1])—ROBERT E. PARKER, Easton, Norwich, for Greyling Welcome 443, grey, bred by Mrs. Emmet, Moreton Morrell; *s.* Rhum 53, *d.* Reversion 349 *by* Noyal F 117498.

311 R. N.—CO-OPERATIVE WHOLESALE SOCIETY, LTD., Estate Office, Coldham, Wisbech, for Alfa.

Class 39.—*Percheron Fillies, born in* 1921.

322 I. (£20, & R. N. for Champion.[2])—HENRY R. OVERMAN, Brampton Ash, Market Harborough, for Brampton Eve B 431, dark grey; *s.* Lagor B 1, *d.* Irene B 23 *by* Clamarz F 64207.

317 II. (£10.)—CHIVERS & SONS, LTD., Histon, Cambridge, for Histon Bonny B 373, dark grey, bred by John Chivers, Wychfield, Cambridge; *s.* Lagor B 1, *d.* Pochette B 181 *by* Lori F 102083.

319 III. (£5.)—GUY FENWICK, North Luffenham Hall, Stamford, for Luffenham Mistral B 437, grey; *s.* Misanthrope B 5, *d.* Helen B 137 *by* Ignare F 81878.

318 R. N.—CHIVERS & SONS, LTD., for Vasque.

Class 40.—*Percheron Mares, with foals at foot.*

328 I. (£20, & Champion.[2])—MAJOR J. S. COURTAULD, M.C., Burton Park, Petworth, for Qualamite B 4, light grey, born in 1916, bred by M. Breux, la Cour, Marners, la Sarthe, France; *s.* Lyonnais F 102760, *d.* Montre F 106607 *by* Iberien F 81155. [Foal *by* Rhum B 53.]

329 II. (£10.)—MRS. ROBERT EMMET, Moreton Paddox, Moreton Morrell, Warwick, for Messaline B 211, grey, born in 1912, bred by M. Demange, Blavette, Barville, Mortagne, France; *s.* Douvreue-ex-Couvreur F 58335, *a.* Paquerette F 87642 *by* Voltigeur F 44388. [Foal *by* Rhum B 53.]

325 III. (£5.)—CHIVERS & SONS, LTD., Histon, Cambridge, for Petronne B 176, grey, born in 1915, bred by M. Louvre, La Reiniere, Mortagne, France; *s.* Japon F 84819, *d.* Hebe F 77119 *by* Megrillon F 59997. [Foal *by* Brilliant H B 42.]

327 IV. (£4.)—THOMAS COOK, Hobland House, Bradwell, Great Yarmouth, for Sonorite B 343, grey, born in 1918, bred by M. Noireau, la Diabliere, Cetoz, Cheil sur Huisne, Montagne, France; *s.* Ohio F 119742, *d.* Identite F 79702 *by* Couserit F 62063. [Foal *by* Perfection B 46.]

324 R. N.—CAPTAIN R. B. BRASSEY, Cottesbrooke Hall, Northampton, for Edna.

Class 41.—*Percheron Colt or Filly Foals, the produce of Mares in Class* 40.[3]

335 I. (£10.)—CHIVERS & SONS, LTD., Histon, Cambridge, for grey colt, born Jan. 25; *s.* Brilliant H B 42, *d.* Petronne B 176 *by* Japon F 84819.

337 II. (£5.)—THOMAS COOK, Hobland House, Bradwell, Great Yarmouth, for grey filly, born April 6; *s.* Perfection B 46, *d.* Sonorite B 343 *by* Ohio F 119742.

338 III. (£3.)—MAJOR J. S. COURTAULD, M.C., Burton Park, Petworth, for dark grey colt, born April 22; *s.* Rhum B 53, *d.* Qualamite B 4 *by* Lyonnais F 102760.

336 R. N.—CHIVERS & SONS, LTD., for grey colt.

Hunters.

Class 42.—*Hunter Colts or Geldings, born in* 1923.

353 I. (£20.)—MAJOR W. H. RAWNSLEY, Well Vale, Alford, Lincs., for Tarpaulin (Vol. 10), bay colt; *s.* Top Covert, *d.* Mermaid 8th 5470 *by* Ocean Wave.

344 II. (£10.)—MAJOR CLIVE BEHRENS, Swinton Grange, Malton, for Prince Harry, chestnut gelding; *s.* Sir Harry, *d.* Flemish Queen 6151 *by* Pericles.

350 III. (£5.)—GUY FENWICK, North Luffenham Hall, Stamford, for Tideway, bay colt; *s.* Tidal Wave, *d.* Ormeau 5689 *by* Ormondale.

345 IV. (£4.)—JAMES A. CHENEY, Luddington, Peterborough, for Fox Trot, bay colt; *s.* Parsifal, *d.* Little Belvoir.

352 V. (£3.)—EATON KIMBELL, The Grange, Great Brington, Northampton, for Sunbeam, bay colt; *s.* Chanteur, *d.* Sunstar 4625 *by* Heliotrope.

357 R. N.—MOFFAT S. THOMSON, Lambden, Greenlaw, for The Twin.

Class 43.—*Hunter Geldings, born in* 1922.

370 I. (£20.)—H. L. STOREY, The Manor House, Malmesbury, for Bailrigg 708, bay; *s.* Rathurde, *d.* Bessie *by* Astrologer.

369 II. (£10.)—EARL SPENCER, Althorp, Northampton, for Moonlight, brown; *s.* Pytchley.

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[1] Perpetual Silver Challenge Cup, value Fifty Guineas, given by the British Percheron Horse Society for the best Percheron Filly in Class 38 born in Great Britain.

[2] Perpetual Silver Challenge Cup, value Fifty Guineas, given by the British Percheron Horse Society for the best Percheron Mare or Filly in Classes 37 to 40.

[3] Prizes given by the British Percheron Horse Society.

366 III. (£5.)—Richard J. Kettleborrow, Bottesford, Nottingham, for **Zulu**, brown; *s.* The Tower 148, *d.* Periwinkle *by* Tantamount.
367 IV. (£4.)—J. Norbury, Heathside, Knutsford, for **Sequel**, chestnut; *s.* St. Petersburg, *d.* Wishful 5565 *by* Mountain Buck.
361 V. (£3.)—George Dickinson, Cark Mills, Cark-in-Cartmel, for **Cark Silver Sun 220**, bay; *s.* Silver Grill, *d.* Cark Bridgett 6265.
359 R. N.—Major Clive Behrens, Swinton Grange, Malton, for **Cranberry**.

Class 44.—*Hunter Geldings, born in* 1921.

380 I. (£20.)—Major Gordon B. Foster, Nawton Towers, Nawton, Yorks., for **Douthwaite 625**, bay; *s.* Dunholme, *d.* Rosscommon Belle *by* Broxton.
378 II. (£10.)—Major Clive Behrens, Swinton Grange, Malton, for **Ptarmigan**, bay; *s.* Primary, *d.* Heather 3rd 4106 *by* Scotch Sign.
376 III. (£5.)—Arthur S. Bowlby, Gilston Park, Harlow, for **Blue Boy 624**, chestnut; *s.* Darigal (Vol. 22), *d.* Half Blue 4446 *by* Fighting Priest.
379 IV. (£4.)—Guy Fenwick, North Luffenham Hall, Stamford, for **Bluebeard**, bay, bred by A. Barnett, Cottesmore, Oakham; *s.* Bluestone, *d. by* Blue Blood.
381 R. N.—William Rafton, High Bonwick, Bewholme, Hull, for **Tunstall**.

Class 45.—*Hunter Fillies, born in* 1923.

390 I. (£20.)—C. E. Howard, Coombe Park, Whitchurch, Reading, for chestnut; *s.* Sunbright, *d.* Willinda *by* Willonyx.
383 II. (£10.)—Major Clive Behrens, Swinton Grange, Malton, for **Hecuba 2nd 6207**, bay; *s.* Crathorne, *d.* Heather 3rd 4106 *by* Scotch Sign.
385 III. (£5.)—Arthur S. Bowlby, Gilston Park, Harlow, for **Lady Rambler**, chestnut; *s.* Scarlet Rambler, *d.* Lady Grace 5759 *by* Darigal.
395 IV. (£4.)—W. Yeo, Belladown, Newton Tracey, Barnstaple, for **Gay Lady 5th 6304**, bay, bred by Mr. Saunders, Sparkford, Somerset; *s.* Gay Lally 5021, *d.* Lady Egermont *by* Boy of Egermont.
393 V. (£3.)—Mrs. Sofer-Whitburn, 38 Grosvenor Place, London, S.W., for **Chinese Elegance**, chestnut; *s.* Irish Elegance 121, *d.* Sampan *by* Santoi.
391 R. N.—J. A. Robson-Scott, Newton, Jedburgh.

Class 46.—*Hunter Fillies, born in* 1922.

398 I. (£20, & R. N. for Champion.[1])—F. W. B. Gubbins, Swalcliffe Park, Banbury, for **Rawnie 6252**, bay; *s.* Time Honoured (Vol. 23, p. 348), *d.* Redskin 4987 *by* Red Sahib 75.
397 II. (£10.)—Major Gordon B. Foster, Nawton Towers, Nawton, Yorks., for **Holme Belle**, bay; *s.* Dunholme, *d.* Roscommon Belle *by* Broxton.
400 III. (£5.)—H. R. Pelly, Lyndsays Farm, Ingatestone, Essex, for **Joan 5th 6083**, brown; *s.* Chanteur (Vol. 21, p. 127), *d.* Sarah 2nd 5861 *by* St. Lorenzo (Vol. 17, p. 9).
401 R. N.—J. A. Robson-Scott, Newton, Jedburgh.

Class 47.—*Hunter Fillies, born in* 1921.

411 I. (£20, & Champion.[1])—Mrs. W. Harcourt Webb, Spring Grove, Bewdley, for **Gay Lassie 3rd 6031**, bay, bred by R. P. Cawsey, Huntshaw, Torrington, Devon; *s.* Gay Lally, *d.* Princess 13th 5949.
409 II. (£10.)—J. A. Robson-Scott, Newton, Jedburgh, for **Delvigne**, brown; *s.* Fowling-piece, *d. by* Gold.
413 III. (£5.)—Mrs. Owen Williams, Crossways, Cowbridge, for **Princess**, chestnut, bred by David Davies, M.P., Llandinam, Mont.; *s.* Bachelor's Image, *d.* Lottery.
408 R. N.—Eaton Kimbell, The Grange, Great Brington, Northampton, for **Althorp**.

Class 48.—*Hunter Mares (Novice), with foals at foot.*

423 I. (£20.)—W. Howkins Hillmorton Grounds, Barby Road, Rugby, for **Marcia**, bay, born in 1916, breeder unknown. [Foal *by* Jingling Geordie.]
418 II. (£10.)—Guy Fenwick, North Luffenham Hall, Stamford, for **Unity**, bay, born in 1912, breeder unknown. [Foal *by* Crathorn.[
419 III. (£5.)—Miss R M. Harrison, O.B.E., Maer Hall, near Newcastle, Staffs, for **Columbine**, dark chestnut, born in 1913, breeder unknown. [Foal *by* Irawaddy.]
417 R. N.—Major and Mrs. E. A. Dodd, The Paddocks, Elsenham, Essex, for **Lucky Packet**.

Class 49.—*Hunter Colt Foals, the produce of Mares in Class* 48.

425 I. (£10.)—Major and Mrs. E. A. Dodd, The Paddocks, Elsenham, Essex, for chestnut, born April 6; *s.* Herodote, *d.* Lucky Packet 5784 *by* Darigal.
426 II. (£5.)—W. Howkins, Hillmorton Grounds, Barby Road, Rugby, for chestnut, born April 13; *s.* Jingling Geordie, *d.* Marcia *by* Markham.

Class 50.—*Hunter Filly Foals, the produce of Mares in Class* 48.

430 I. (£10.)—C. E. Howard, Coombe Park, Whitchurch, Reading, for chestnut, born Jan. 21; *s.* Sunbright, *d.* Eerie *by* Ayrshire.

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[1] Champion Gold Medal given by the Hunters' Improvement and National Light Horse Breeding Society for the best Filly not exceeding three years old in Classes 45 to 47, which must be either registered in the Hunter Stud Book, or the entry tendered within a month of the Award.

429 II. (£5.)—Miss R. M. Harrison, O.B.E., Maer Hall, near Newcastle, Staffs, for chestnut, born April 22; *s.* Irawaddy, *d.* Columbine.

428 III. (£3.)—Guy Fenwick, North Luffenham Hall, Stamford, for bay, born April 27; *s.* Crathorne, *d.* Unity.

Class 51.—*Hunter Mares, with foals at foot.*

434 I. (£20, & Champion.[1])—Lt.-Col. Sir Merrik R. Burrell, Bt., C.B.E., Knepp Castle, Horsham, for The Belle, brown, born in 1916; *s.* Hanover Square, *d.* Surprise *by* Silver King. [Foal *by* The Best.]

431 II. (£10, & R. N. for Champion.[1])—John C. Baird, Birchfield, Falkirk, for Viorne 5769, grey, born in 1910. [Foal *by* Lorenzo.]

437 III. (£5.)—Walter J. Fryer, Kalyis House, Maidenhead, for Larch 5847, bay, born in 1911, bred by Lt.-Col. Meysey Thompson, Knaresborough, Yorks; *s.* Birk Gill 178, *d.* Britannia 173 *by* Prince Vortimer. [Foal by Gay Lally.]

432 R. N.—Charles G. Beard, Edmondscote Manor, Leamington, for Clematis.

Class 52.—*Hunter Colt Foals, the produce of Mares in Class* 51.

438 I. (£10.)—Charles G. Beard, Edmondscote Manor, Leamington, for bay, born April 16; *s.* Sundown, *d.* Clematis 5764 *by* Denis Richard.

Class 53.—*Hunter Filly Foals, the produce of Mares in Class* 51.

441 I. (£10.)—Lt.-Col. Sir Merrik R. Burrell, Bt., C.B.E., Knepp Castle, Horsham, for dark bay, born April 24; *s.* The Best, *d.* The Belle *by* Hanover Square.

439 II. (£5.)—John C. Baird, Birchfield, Falkirk, for chestnut, born March 26; *s.* Lorenzo, *d.* Viorne *by* Grey Plume.

443 III. (£3.)—Walter J. Fryer, Kalyis House, Maidenhead, for Gaylarch, bay, born March 29; *s.* Gay Lally, *d.* Larch 5487 *by* Birk Gill 178.

Polo and Riding Ponies.

Class 54.—*Polo and Riding Pony Colts, born in* 1923.

445 I. (£15.)—Tresham Gilbey, Whitehall, Bishops Stortford, for **Whirlpool**, black; *s.* Bridgewater (Vol. 23, p. 1189), *d.* Skedaddle 2538.

444 II. (£10.)—Herbert Bright, The Cove, Silverdale, Carnforth, for **Silverdale Loyalty** (Supp. 1923), dark brown; *s.* Prince Friarstown (Supp. 1917), *d.* Silvery 2nd 4168 *by* Right For'ard 368.

Class 55.—*Polo and Riding Pony Stallions, born in* 1922.

446 I. (£15, & R. N. for Champion.[2])—Tresham Gilbey, Whitehall, Bishop's Stortford, for **Royal Recruit** (Supp. 1923), chestnut; *s.* Reform 1002, *d.* Waiting Maid 3922 *by* Arthur D 593.

449 II. (£10.)—C. Howard Taylor, Middlewood Hall, Barnsley, for **Return** (Supp. 1922), bay; *s.* Tennis Ball (Vol. 22, p. 285), *d.* Smart 3325 *by* Field Marshal 512.

448 III. (£5.)—Lady Penrhyn, Wicken Park, Stony Stratford, for **Friar** (Supp. 1922), black; *s.* Prince Friarstown (Supp. 1917), *d.* Hannah Ann (Approved Mare Register, p. 45) *by* Charé.

447 R. N.—Mrs. Philip Hunloke, Stylehurst Farm, Capel, Surrey, for **French Plum**.

Class 56.—*Polo and Riding Pony Stallions, born in* 1920 *or* 1921, *not exceeding* 15 *hands.*

453 I. (£15, & Champion.[2])—Captain W. H. Franck-Hayhurst, Bostock Hall, Middlewich, for **Rosewood** 1269, chestnut, born in 1921; *s.* Tantamount (Vol. 22, p. 707), *d.* Lady Brilliant 4169 *by* Field Marshal 512.

455 II. (£10.)—Tresham Gilbey, Whitehall, Bishop's Stortford, for **Wild Tint** 1207, bright bay, born in 1920, bred by Capt. Noel H. Wills, Rendcomb Park, Glos.; *s.* Cherry Tint 761, *d.* Bowery *by* Bowden (Supp. 1913).

452 III. (£5.)—Lady Durand, Croft House, Somerford Keynes, Cricklade, for **Clarione** 1201, bay, born in 1920, bred by S. Mumford, jun., Stud Farm, Moreton Morrell, Warwick; *s.* Rattle Jack, *d.* Clairvoyante 2378 *by* Ventriloquist (Vol. 20, p. 191.)

450 R. N.—Herbert Bright, The Cove, Silverdale, Carnforth, for **Silverdale Cheerio**.

Class 58.—*Polo and Riding Pony Fillies or Geldings, born in* 1923.[3]

459 I. (£15.)—Captain W. H. Franck-Hayhurst, Bostock Hall, Middlewich, for **H.R.H.** (Supp. 1923), chestnut filly; *s.* Prince Friarstown (Supp. 1917), *d.* Juliet 2nd (Supp. 1912) *by* Sandiway 121.

460 II. (£10.)—Captain W. H. Franck-Hayhurst, for **Rosette 4th** (Supp. 1923), chestnut filly; *s.* French Eagle (Vol. 22, p. 505), *d.* Lady Brilliant 4169 *by* Field Marshal 512.

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[1] Champion Gold Medal given by the Hunters' Improvement and National Light Horse Breeding Society, for the best Mare four years old and upwards in Classes 48 and 51, which must be either registered in the Hunter Stud Book, or the entry tendered within a month of the Award.

[2] Champion Gold Medal given by the National Pony Society for the best Stallion or Colt in Classes 54 to 57.

[3] Prizes given by the National Pony Society.

462 III. (£5.)—LADY PENRHYN, Wicken Park, Stony Stratford, for **Tea Rose 2nd** (Supp. 1923), bay filly; *s.* Prince Friarstown (Supp. 1917), *d.* Rose Ray (Approved Mare Register) *by* Othray.

461 R. N.—TRESHAM GILBEY, Whitehall, Bishop's Stortford, for **Dairy Maid.**

Class 59.—*Polo and Riding Pony Fillies or Geldings, born in* 1922.

465 I. (£15.)—TRESHAM GILBEY, Whitehall, Bishop's Stortford, for **Crofter**, bay gelding, bred by R. P. Croft, St. Margarets, Ware, Herts; *s.* Reform 1002, *d.* Kitty Spark 2116.

463 II. (£10, & R. N. for Champion.[1])—HERBERT BRIGHT, The Cove, Silverdale, Carnforth, for **Silverdale Betula** (Supp. 1922), brown filly; *s.* Cherry Tint 761, *d.* Silvery 2nd 4168 *by* Right For'ard 368.

464 III. (£5.)—CAPTAIN W. H. FRANCE-HAYHURST, Bostock Hall, Middlewich, for **Roseleaf 2nd** (Supp. 1922), chestnut filly; *s.* St. Petersburg (Vol. 21, p. 479), *d.* Lady Brilliant 4169 *by* Field Marshal 512.

Class 60.—*Polo and Riding Pony Fillies or Geldings, born in* 1921.

466 I. (£15, & Champion.[1])—HERBERT BRIGHT, The Cove, Silverdale, Carnforth, for **Silverdale Faith** (Supp. 1922), bay filly, bred by Captain Noel H. Wills, Misarden Park, Cirencester; *s.* Cherry Tint (Vol. 22), *d.* Bowery 3388 *by* Bowdon (Supp. 1913).

467 II. (£10.)—TRESHAM GILBEY, Whitehall, Bishop's Stortford, for **Flash Eyes** (Supp. 1923), bay filly, bred by Cubitt Nichols, Abbess Roding, Ongar; *s.* Reform 1002, *d.* Lady Cubitt (Approved Mare Register, p. 30) *by* Captain Jack.

Class 61.—*Polo and Riding Pony Mares, with foals at foot, not exceeding* 15 *hands.*

474 I. (£15, & Champion.[2])—C. HOWARD TAYLOR, Middlewood Hall, Barnsley, for **Calico** 3322, chestnut, born in 1914; *s.* Don Patricio 592, *d.* Calceolaria 2166 *by* Marechal Niel 363. [Foal *by* The Marne 1075.]

472 II. (£10, R. N. for Champion,[2] & Champion.[3])—CAPTAIN W. H. FRANCE-HAYHURST, Bostock Hall, Middlewich, for **Lady Brilliant** 4169, chestnut, born in 1914, bred by the Rev. W. C. Gosling, Woolley, Wakefield; *s.* Field Marshal 512, *d.* Rose Diamond (Supp. 1904) *by* Rosewater 37. [Foal *by* Great Surprise.]

469 III. (£5, & R. N. for Champion.[3])—D. ALDRIDGE, Sketchley Hall Farm, Hinckley, for **The Maltese Cat**, grey. [Foal *by* Sahara 847.]

471 R. N.—MISS B. G. CORY-WRIGHT, Ayot Place, Welwyn, Herts, for **Duck-in.**

Arabs.

Class 62.—*Arab Stallions, any age.*

483 I. (£15, & Champion.[4])—LT.-COL. P. D. STEWART, Chadshunt, Kineton, Warwick, for **Crosbie** (Vol. 1, p. 36), white, born in 1909.

477 II. (£10, & R. N. for Champion.[4])—C. W. HOUGH, Springhouse Park, Theydon Bois, Essex, for **Nuri Sherif** (Vol. 2, p. 63), bay, born in 1920, bred by the late S. G. Hough, Springhouse Park, Theydon Bois; *s.* Nureddin 2nd, *d.* Sheba *by* Ben Azack.

476 III. (£5.)—MAJOR G. H. BARKER, The Gables, Lyminge, Kent, for **Koheilan** (Vol. 3), flea-bitten grey, born in 1912, bred by the late Emir Ibn Raschid, Hail, Nejd.

478 R. N.—SIDNEY W. LEWIS, Nowell House, Stocksfield, for **Grey Sheikh.**

H. C.—480. C.—475, 482.

Class 63.—*Arab Mares, with foals at foot.*

485 I. (£15, & Champion.[5])—C. W. HOUGH, Springhouse Park, Theydon Bois, for **Nejmar**, chestnut, born in 1914, bred by the late Emir Ibn Raschid, Hail Nejd. [Foal *by* Shahzada (Vol. 1, p. 70).]

484 II. (£10, & R. N. for Champion.[5])—C. W. HOUGH for **Nedjmiê** (Vol. 3), grey, born in 1914, bred by Sheik Moubarek, Sabagh, Nejd. [Foal *by* Nuri Pasha (Vol. 2, p. 62).]

Cleveland Bays.

Class 64.—*Cleveland Bay Stallions, any age.*

486 I. (£15.)—LEWIS EDMUNDS, Cholderton, Salisbury, for **Cholderton Confident** 1761, born in 1921; *s.* Cholderton King George 1745, *d.* Cholderton Saltaire 1290 *by* Wellington 1488.

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[1] Champion Silver Medal given by the National Pony Society for the best Filly in Classes 58 to 60.

[2] Champion Gold Medal given by the National Pony Society for the best Mare or Filly in Classes 58 to 61.

[3] Bronze Medal given by the National Pony Society for the best Foal in Class 61 entered in the Supplement to the National Pony Stud Book.

[4] Gold Medal given by the Arab Horse Society for the best Stallion in Class 62.

Gold Medal given by the Arab Horse Society for the best Mare in Class 63.

Coach Horses.

Class 66.—*Coaching Stallions, any age.*

487 I. (£15.)—William Grayson, Normanby House, Pickering, for **Tantalus 2544**, born in 1911, bred by Dobson Coates, Pickering; *s.* Breaston Prince 2451, *d.* Violet 1199 *by* Lord Chief Justice 1244.

Class 67.—*Coaching Mares, with foals at foot.*

488 I. (£15.)—F. H. Carr, Kexby House, Kexby Bridge, Yorks, for **Lady Marjorie 1324**, born in 1919; *s.* Kexby Majesty 2577, *d.* Yorkshire Princess 1200 *by* Breaston Prince 2451. [Foal *by* Beckwith.]

Hackneys.

Class 68.—*Hackney Stallions, born in* 1921 *or* 1922.

492 I. (£15, & Champion.[1])—Walter Briggs, Linden Hall, Borwick, Carnforth, for **Albin King's Heir 14097**, dark chestnut, born in 1921; *s.* Adbolton Kingmaker 12274, *d.* Albin Lady Borwick 22981 *by* Beckingham Squire 8070.

494 II. (£10.)—Henry T. Holloway, West Lavington, Wilts, for **Node Chamberlain 13818**, chestnut, born in 1921, bred by Sir C. A. Nall-Cain, Bart., The Node, Welwyn; *s.* King's Chamberlain 13407, *d.* Abdullah 21203 *by* Leopold 9783.

493 III. (£5.)—H. C. Callaby, Caley Stud Farm, Heacham, King's Lynn, for **Hunston Bondsman 14041**, chestnut, born in 1921; *s.* Leopold 9783, *d.* Pious Bonds 16103 *by* Polonius 4931.

495 R. N.—F. W. Wilmot, Orsett, Grays, Essex, for **Buckley Grandee 14198.**

H. C.—489.

Class 69.—*Hackney Stallions, born in or before* 1920, *over* 14 *hands.*

497 I. (£15, & R. N. for Champion.[1])—Mrs. Fletcher and Sons, The Grange, Angram, York, for **Angram Supreme 14241**, chestnut, born in 1920, bred by W. Greenwood, Lidgett Park, Leeds; *s.* Angram Majesty 11967, *d.* Airedale Patch 24421 *by* Hopwood King 11804.

498 II. (£10.)—William Holden, Bankfield House, Chevin, Belper, Derbyshire, for **Chevin Chancellor 14019**, chestnut, born in 1920, bred by J. T. Yates, Quarndon, Derby; *s.* Adbolton Kingmaker 12274, *d.* Quarndon Queen 23298 *by* Cliffe Sirdar 8789.

Class 70.—*Hackney Fillies or Geldings, born in* 1922.

499 I. (£15, & R. N. for Champion.[2])—Mrs. Fletcher and Sons, The Grange, Angram, York, for **Angram Lady Rickell 26154**, dark chestnut filly; *s.* Angram Majesty 11967, *d.* Last of the Rickells 26153 *by* Doctor Polonius 12353.

500 II. (£10.)—Henry T. Holloway, West Lavington, Wilts, for **Lavington Sylvie 25940**, dark chestnut filly; *s.* Kirkburn Leader 12875, *d.* Cruiskeen Laun 21945 *by* Terrington Recruit 9463.

Class 71.—*Hackney Fillies or Geldings, born in* 1921.

501 (£15.)—Henry B. Brandt, Capenor, Nutfield, Surrey, for **Angram Birthday 25773**, chestnut filly, bred by William Martin, Manor House, Stamford Bridge, York; *s.* Angram Majesty 11967, *d.* Princess Dora Mary 23735 *by* Beckingham Squire 8070.

502 II. (£10.)—William Greenwood, Airedale Hackney Stud, Roundhay, Leeds, for **Airedale Carnation 25764**, chestnut filly; *s.* Bertrano 13288, *d.* Belle Mere 21237 *by* Polonius 4931.

Class 72.—*Hackney Mares, with foals at foot.*

503 I. (£15, & Champion.[2])—Enoch Glen, Kaim Park, Bathgate, Scotland, for **Creake Lady 23912**, chestnut, born in 1914, bred by H. V. Sheringham, South Creake, Fakenham; *s.* Antonius 10559, *d.* Creake Connie 18130 *by* Manifred 5301. [Foal *by* Ophelius 13344.]

509 II. (£10.)—Mrs. E. M. Slough, Oakdene, Byng Road, High Barnet, Herts, for **Capenor Adelaide 25026**, chestnut, born in 1919, bred by H. B. Brandt, Capenor, Nutfield, Surrey; *s.* Capenor Addenda 12979, *d.* Treasure Trove 18698 *by* Goldfinder 6th 1791. [Foal *by* Capenor King's Minister 13724.]

508 III. (£5.)—W. M. Killick, Hankelow Court, Nantwich, for **Shavington Princess Parade 24862**, chestnut, born in 1914, bred by W. Heath, Crewe; *s.* Antonius 10559, *d.* Haggwood Princess 15851 *by* Langton 6078. [Foal *by* Buckley Courage 13771.]

H. C.—505.

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[1] Champion Prize of £10 given by the Hackney Horse Society for the best Stallion in Classes 68 and 69.

[2] Champion Prize of £10 given by the Hackney Horse Society for the best Mare or Filly in Classes 70 to 72.

Hackney Ponies.

Class 73.—*Hackney Pony Stallions, born in* 1921, *not exceeding* 13·3 *hands, or* 1922, *not exceeding* 13·2 *hands.*

514 **I. (£15, & R. N. for Champion.[1])**—F. W. Wilmot, Orsett, Grays, Essex, for **Buckley Gunshot** 14120, dark bay, born in 1921, bred by C. F. Kenyon, Buckley, Chester; *s.* Melbourne Shot 13055, *d.* Rusper Maryan 22789 *by* Tissington Gideon 9042.

511 **II. (£10.)**—C. F. Kenyon, Steele, Whitchurch, Salop, for **Talke Bonfire** 14178, bay, born in 1922, bred by W. Wainwright, Talke Pony Stud, Talke; *s.* Southworth Swell 11219, *d.* Talke Fire-fly 24086 *by* Talke Fire King 9932.

510 **III. (£5.)**—Joshua Ball, Southworth Hall, Warrington, for **Southworth Masher** 14245, chestnut roan, born in 1921, bred by D. R. Thomas, Tanyrallt, Cardigan; *s.* Tanyrallt Sir Horace 12749, *d.* Tanyrallt Velocity 25917 *by* Southworth Swell 11219.

Class 74.—*Hackney Pony Stallion, born in or before* 1920, *not exceeding* 14 *hands.*

515 **I. (£15, & Champion.[1])**—Major J. W. Barclay, Woodlands, Galleywood, Chelmsford, for **Master Shot** 13529, dark brown, born in 1917, bred by Edwin Pears, Laytham Green, Ellerton, Yorks; *s.* Melbourne Shot 13055, *d.* Lady Moon 24538 *by* Successful 8314.

517 **II. (£10.)**—A. W. Tunbridge, Dordon Hall, Tamworth, for **Merevale Fusee** 13903, bay, born in 1920; *s.* Fusee 12626, *d.* Merevale Orphan 23243 *by* Fireboy 7440.

Class 75.—*Hackney Pony Fillies or Geldings, born in* 1921, *not exceeding* 13·3 *hands, or* 1922, *not exceeding* 13·2 *hands.*[2]

519 **I. (£15, & Champion.[3])**—C. F. Kenyon, Steele, Whitchurch, Salop, for **Julia Southworth** 25964, bay filly, born in 1921, bred by J. Ball, Southworth Hall, Warrington; *s.* Southworth Swell 11219, *d.* Southworth Merriment 21674 *by* Southworth Tissington 9898.

518 **II. (£10, & R. N. for Champion.[3])**—Mrs. Henry T. Holloway, West Lavington, Wilts, for **Lavington Fifinella** 26066, bay filly, born in 1921, bred by A. Jackson, Madeley, Crewe; *s.* Fusee 12626, *d.* Barlaston Lady 26058 *by* Fireboy 7440.

520 **III. (£5.)**—F. W. Wilmot, Orsett, Grays, Essex, for **Buckley Alice** 26087, dark bay filly, born in 1922, bred by C. F. Kenyon, Buckley, Chester; *s.* Bricket Fusilier 13509, *d.* Buckley Poppy 25150 *by* Little Briton 11813.

Class 76.—*Hackney Pony Mares, with foals at foot, not exceeding* 14 *hands.*

522 **I. (£15.)**—A. W. Tunbridge, Dordon Hall, Tamworth, for **Merevale Maryan** 25792, dark brown, born in 1919, bred by C. F. Kenyon, Steele, Whitchurch; *s.* Melbourne Shot 13055, *d.* Rusper Maryan 22789 *by* Tissington Gideon 9042.

521 **II. (£10.)**—Joshua Ball, Southworth Hall, Warrington, for **Nan Southworth** 24554, brown, born in 1916; *s.* Southworth Swell 11219, *d.* Southworth Merriment 21674 *by* Southworth Tissington 9898. [Foal *by* Southworth Masher 14245.]

Welsh Mountain Ponies.[4]

Class 77.—*Welsh Pony Stallions, born in* 1920, *not exceeding* 12 *hands, or* 1921, *not exceeding* 11·3 *hands.*

525 **I. (£15.)**—F. Ffitch Mason, The Faraam, Killay, Glamorgan, for **Faraam Cocoa Nibs** (Vol. 23), grey, born in 1921; *s.* Grove Elfin 729, *d.* Clumber Miss Noko 5993 *by* Hardwick Conqueror 668.

523 **II. (£10.)**—Lord Howard de Walden, Chirk Castle, Chirk, Wrexham, for **Bilberry** 1146, dark brown, born in 1921; *s.* Stanage Halley's Comet 494, *d.* Chirk Castle No. 6–17 7287 *by* Grove Rushlight 451.

524 **III. (£5.)**—Lord Howard de Walden, for **Hazel** 1165, chestnut, born in 1921; *s.* Stanage Halley's Comet 494, *d.* Chirk Castle No. 23 5129 *by* Grove Ballistite 200.

Class 78.—*Welsh Pony Stallions, born in or before* 1919, *not exceeding* 12 *hands.*

529 **I. (£15.)**—Mrs. H. D. Greene, Grove, Craven Arms, Salop, for **Grove King Cole 2nd** 565, grey, born in 1911; *s.* Grove King Cole 197, *d.* Bleddfa Tell Tale 943 *by* Tyrant 477.

530 **II. (£10.)**—Mrs. H. D. Greene, for **Grove Sprightly** 1036, grey, born in 1918; *s.* Shooting Star 73, *d.* Grove Sprite 4431 *by* Grove Ballistite 200.

531 **III. (£5.)**—F. Ffitch Mason, The Faraam, Killay, Glamorgan, for **Grove Grey Dawn** 893, grey, born in 1914, bred by Mrs. Greene, Grove, Craven Arms; *s.* Dyoll Starlight 4, *d.* Grove Greyling 2879 *by* Stretton Dynamite 76.

527 **R. N.**—Lord Howard de Walden, Chirk Castle, Chirk, Wrexham, for **Wentworth Windfall.** **H. C.**—532.

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[1] Champion Prize of £10 given by the Hackney Horse Society for the best Stallion in Classes 73 and 74.

[2] Prizes given by Members of the Hackney Horse Society.

[3] Champion Prize of £10 given by the Hackney Horse Society for the best Mare or Filly in Classes 75 and 76.

[4] Silver Medals and Illustrated Certificates were given by the Welsh Pony and Cob Society to the First Prize Winner in each class.

Class 79.—*Welsh Pony Mares, born in or before* 1920, *with Foals at foot, not exceeding* 12 *hands.*

537 I. (£15.)—Mrs. A. C. Lyell, Ness Pony Stud, Neston, Cheshire, for **Ness Violet 7360**, grey, born in 1917, bred by T. J. Powell, Penarth; *s.* Grove ap. Archlight 845, *d.* Penarth Flower Girl 2211 *by* Shooting Star 73. [Foal *by* Penarth Stud Horse.]

536 II. (£10.)—Mrs. A. C. Lyell, for **Ness Daisy 6598**, dun, born in 1915; *s.* Wentworth Windfall 993, *d.* Little Doris 2904 *by* Starlight 4. [Foal *by* Starshot 1111.]

534 III. (£5.)—Mrs. H. D. Greene, Grove, Craven Arms, for **Grove Firelight 6037**, brown, born in 1917; *s.* Shooting Star 73, *d.* Grove Twilight 3017 *by* Grove Ballistite 200. [Foal *by* Grove Sprightly 1036.]

535 R. N.—Mrs. Philip Hunloke, Stylehurst Farm, Capel, Surrey, for **Castlemai Kittiwake.**
H. C.—538. C.—539.

Shetland Ponies.

Class 80.—*Shetland Pony Stallions, born in or before* 1921, *not exceeding* 10·2 *hands.*

540 I. (£15, & Champion.[1])—Mrs. Etta Duffus, Penniwells, Elstree, Herts, for **Dibblitz of Penniwells** (Vol. 29, p. 65), black, born in 1920; *s.* Blitz 848, *d.* Diddy 2193 *by* Diamond 257.

542 II. (£10.)—R. W. R. Mackenzie, Earlshall, Leuchars, Fife, for **Express of Anniston 350**, black, born in 1921, bred by the Hon. Mrs. Raitt, Anniston, Arbroath; *s.* Gluss Norseman 759, *d.* Emblem of Earlshall 3974 *by* Dragon of Earlshall 595.

543 III. (£5.)—Miss Phyllis L. Straker, Stagshaw, Corbridge-on-Tyne, for **Dice Box of Earlshall** (Vol. 28, p. 68), dark grey, born in 1920, bred by R. W. R. Mackenzie, Earlshall, Leuchars; *s.* Empire Day 539, *d.* Diana 2026 *by* Dick 238.

Class 81.—*Shetland Pony Mares, with Foals at foot, not exceeding* 10·2 *hands.*

546 I. (£15, & R. N. for Champion.[1])—Mrs. Etta Duffus, Penniwells, Elstree, for **May Queen of Penniwells 3348**, black, born in 1911; *s.* Dante of Coalville 444, *d.* Mayfly of Penniwells 2582 *by* Glencairn 314. [Foal *by* Huzzoor of Penniwells 864.]

548 II. (£10.)—R. W. R. Mackenzie, Earlshall, Leuchars, Fife, for **Briar Rose of Earlshall** (Vol. 28, p. 81), black, born in 1918; *s.* Bessbrook of Earlshall 397, *d.* Brend of Earlshall 3391 *by* Helmet of Earlshall 408. [Foal *by* Bell Metal of Earlshall 638.]

545 III. (£5.)—Mrs. Etta Duffus, for **Heather Belle 3802**, black, born in 1914, bred by A. Smiles, Monks Green Farm, Fetcham, Surrey; *s.* Bell Rock of Earlshall 586, *d.* Flemington Sunbeam 472. [Foal *by* Vagary of Penniwells 841.]

547 R. N.—Mrs. Philip Hunloke, Stylehurst Farm, Capel, Surrey, for **Monica of Earlshall.**

Riding Classes.[2]

HUNTER.

Class 82.—*Hunter Mares or Geldings, born in* 1920.

550 I. (£15.)—Arthur S. Bowlby, Gilston Park, Harlow, for **The Tory 564**, chestnut gelding, bred by the Rev. E. T. Murray, Bourton-on-the-Hill Rectory; *s.* Political, *d.* Prudence 4th 5028 *by* Puro Caster.

560 II. (£10.)—Major W. Harcourt Webb, Spring Grove, Bewdley, for **Rocklight 572**, chestnut gelding, bred by William Yeo, Newton Tracey, Barnstaple; *s.* Captain Rush, *d.* Deep Sea.

554 III. (£5.)—Eaton Kimbell, The Grange, Great Brington, Northampton, for **Red Stone**, chestnut gelding, bred by the late Harry Preston, Kettering; *s.* Blue Stone, *d.* Link's Pride 4947 *by* Drummond's Pride.

551 IV. (£3.)—William B. Brown, South Holme, Slingsby, Malton, for **Bachelor's Lady**, brown mare; *s.* Bachelor's Lodge, *d.* Proud Mary *by* Proudridge.

553 R. N.—James A. Cheney, Luddington, Peterborough, for **Brawny.**

Class 83.—*Hunter Mares or Geldings (Novice), born in or before* 1920, *up to from* 12 *to* 14 *stones.*

601 I. (£15.)—Major the Hon. R. Molyneux, 13 Charles Street, Berkeley Square, W.1, for **Lowesby**, bay gelding, aged.

584 II. (£10.)—Mrs. Mather-Jackson, Hellidon House, Daventry, for **Rosetown**, bay gelding, born in 1918; *s.* Don Juan, *d. by* Walmagate.

568 III. (£5.)—John Drage, Chapel Brampton, Northampton, for **Biscuit**, brown gelding, born in 1918.

581 IV. (£3.)—R. Kay Knowles, Ednaston, Derby, for **Diaphanous**, brown mare, born in 1919, bred by J. F. Montague; *s.* Fairy King, *d.* Primrose Jane.

577 R. N.—Geoff Kenyon, Angel Hotel, Market Harborough, for **Sunrise.**
H. C.—590.

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[1] Champion Silver Medal given through the Shetland Pony Stud Book Society for the best Shetland Pony in Classes 80 and 81.

[2] Prizes given by the Leicester Local Committee.

Class 84.—*Hunter Mares or Geldings (Novice), born in or before* 1920, *up to more than* 14 *stones.*

613 I. (£15.)—R. Weaver, Castletown, Farndon, Cheshire, for **Rebel**, bay gelding, born in 1917.

570 II. (£10.)—John Drage, Chapel Brampton, Northampton, for **Peter**, chestnut gelding, born in 1918.

602 III. (£5.)—Lady Irene Curzon, The Cottage, Melton Mowbray, for **Rippingale**, bay gelding, aged.

606 IV. (£3.)—Major Vivian D. S. Williams, Greens Norton Court, Towcester, for **Reaper**, chestnut gelding, born in 1918.

569 R. N.—John Drage, for **Actor.**

Class 85.—*Hunter Mares or Geldings, born in or before* 1920, *up to from* 12 *to* 13·7 *stones.*

571 I. (£20, & R. N. for Champion.[1])—John Drage, Chapel Brampton, Northampton, for **Joe**, brown gelding, born in 1915, bred by G. Drummond, Pitsford, Northampton.

568 II. (£15.)—John Drage, for **Biscuit.** (See Class 83.)

581 III. (£10.)—R. Kay Knowles, for **Diaphonous.** (See Class 83.)

577 IV. (£5.)—Geoff Kenyon, Angel Hotel, Market Harborough, for **Sunrise**, chestnut gelding, born in 1919, bred by Sir Francis Dunnell, York; *s.* Dromonby, *d. by* Sunspots.

626 V. (£3.)—Inspector of Remounts, Remounts Depot, Melton Mowbray, for **Winburn**, bay gelding, born in 1918.

590 R. N.—Capt. M. O. Roberts, Woolsthorpe, Grantham, for **Clicquot.**
H. C.—593.

Class 86.—*Hunter Mares or Geldings, born in or before* 1920, *up to more than* 13·7, *and not more than* 15 *stones.*

623 I. (£20, & Champion.[1])—Capt. A. Loewenstein, C.B., Pinfold, Thorpe Satchville, Melton Mowbray, for **The Duke**, bay gelding, born in 1916.

614 II. (£15.)—R. Weaver, Castletown, Farndon, Cheshire, for **Kildare**, chestnut gelding, born in 1917, bred by Mr. Barton, Straffan, Co. Kildare; *s.* Rodney, *d. by* Red Prince.

570 III. (£10.)—John Drage, for **Peter.** (See Class 84.)

597 IV. (£5.)—W. Ernest Stokes, Great Bowden, Market Harborough, for **Bullace 719**, chestnut gelding, born in 1917.

602 V. (£3.)—Lady Irene Curzon, for **Rippingale.** (See Class 84.)

550 R. N.—Arthur S. Bowlby, for **The Tory.** (See Class 82.)
H. C.—606.

Class 87.—*Hunter Mares or Geldings, born in or before* 1920, *up to more than* 15 *stones.*

624 I. (£20.)—Capt. A. Loewenstein, C.B., Pinfold, Thorpe Satchville, Melton Mowbray, for **Rex**, dark chestnut, born in 1918.

603 II. (£15.)—Sir John Leigh, Bart., M.P., 6 Carlton House Terrace, London, S.W., for **Jorrocks**, bay gelding.

632 III. (£10.)—Mrs. D. Blackburn, De Vere, Marazion, Cornwall, for **St. Michael**, bay gelding.

572 IV. (£5.)—John Drage, Chapel Brampton, Northampton, for **Fox**, chestnut gelding, born in 1918.

613 V. (£3.)—R. Weaver, for **Rebel.** (See Class 84.)

580 R. N.—Geoff Kenyon, Angel Hotel, Market Harborough, for **Whiteheart.**
C.—598, 611.

Hacks and Riding Ponies.

Class 88.—*Mares or Geldings, not exceeding* 15 *hands.* (*Light Weight.*)

638 I. (£15.)—William Kennedy, The Garth, Monkton Village, Jarrow-on-Tyne, for **Miss Winnie**, chestnut mare, born in 1915.

573 II. (£10.)—John Drage, Chapel Brampton, Northampton, for **Magpie**, black mare, born in 1918.

642 III. (£5.)—Arthur E. Terry, Quarrendon, Aylesbury, for **Blue Diamond**, bay gelding, born in 1909.

599 IV. (£3.)—W. Ernest Stokes, Great Bowden, Market Harborough, for **Lustre**, bay mare, born in 1918.

643 R. N.—Major H. A. Wernher, Thorpe Lubenham Hall, Market Harborough, for **Piave.**

Class 89.—*Mares or Geldings, not exceeding* 15 *hands.* (*Heavy Weight.*)

639 I. (£15.)—William Kennedy, The Garth, Monkton Village, Jarrow-on-Tyne, for **Esperance**, dun gelding, born in 1919.

644 II. (£10.)—J. E. Hearth, The Oaks, Woodhouse Eaves, Loughborough, for **Filbert**, brown gelding, born in 1918.

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[1] Gold Challenge Cup value Fifty Guineas given by gentlemen interested in Hunters for the best Mare or Gelding in Classes 82 to 87.

Class 90.—*Mares or Geldings, over* 15 *hands.*

648 I. (£15, & Champion.[1])—Lady Penrhyn, Wicken Park, Stony Stratford, for **Cuckoo**, bay mare, born in 1916; *s.* Sant Murgis.
652 II. (£10, & R. N. for Champion.[1])—W. J. Smith, Ltd., Little Cadogan Place, Belgrave Square, London, S.W., for **Cadogan Victory**, bay-brown gelding.
608 III. (£5.)—Mrs. Vivian D. S. Williams, Greens Norton Court, Towcester, for **Alert**, bay gelding, born in 1918.
647 IV. (£3.)—Major Gordon B. Foster, Nawton Towers, Nawton, Yorks, for **Habton**, bay mare, born in 1918, bred by R. Bulmer, Habton, Yorks; *s.* Blacksmith.
621 R. N.—Mrs. H. E. Jerome, Pittern Hill, Kineton, Warwick, for **Joy.**

Children's Ponies.

Class 91.—*Mares or Geldings, not exceeding* 13 *hands, to be ridden by a child born in or after* 1914.

661 I. (£10.)—Eric B. Forwood, Stanford Mear, Rugby, for **Ping Pong**, bay mare, aged.
595 II. (£5.)—J. Kenneth Stevenson, The Chase, Upper Welland, Malvern Wells, for **Tom Tit**, brown gelding, born in 1920.
662 III. (£3.)—Miss Nancy Johnson, The Cottage, Foston, Derby, for **Silvertop**, grey gelding, born in 1913.
657 R. N.—Ben Bealby, Broomhill Grange, Edwinstowe, Newark, for **Magpie.**

Class 92.—*Mares or Geldings, over* 13 *and not exceeding* 14 *hands, to be ridden by a child born in or after* 1910.

675 I. (£10.)—Eric B. Forwood, Stanford Mear, Rugby, for **Muscatelle**, bay mare, born in 1918.
677 II. (£5.)—J. E. Hearth, The Oaks, Woodhouse Eaves, Loughborough, for **Lady Marvel**, grey mare, born in 1915.
674 III. (£3.)—Eric B. Forwood, for **Champagne**, bay mare, born in 1918.
672 R. N.—Col. R. P. Croft, Fanhams Hall, Ware, for **Playful.**

Driving Classes.[2]

SINGLE HARNESS.

Class 93.—*Harness Mares or Geldings (Novice), not exceeding* 14 *hands.*

700 I. (£15, & Champion.[3])—William S. Miller, Balmanno Castle, Bridge of Earn, N.B., for **Billet Doux G 382**, bay gelding, born in 1921, bred by C. H. Wing, Boston; *s.* Southworth Swell 11219, *d.* Jenny Melbourne 23186 *by* Successful 8317.
695 II. (£10.)—John Highet, Wardhead, Stewarton, N.B., for **Queen of Trumps**, brown mare, born in 1919; *s.* Fusee 12626, *d.* No Trumps 23699 *by* Mathias 6473.
685 III. (£5.)—Robert Black, The Grove, Osbaldwick, York, for **Habrough Shot G 253**, bay gelding, born in 1919, bred by Miss E. Lort, Castlemai, Carnarvon; *s.* Melbourne Shot 13055, *d.* Betto Brown 20529 *by* Sir Horace 5402.
713 IV. (£3.)—Joseph Smith 56, Victoria Road East, Leicester, for **Cestrian Mascot G 278**, bay gelding, born in 1919, bred by James Hales, Kilverstone, Thetford; *s.* Peacock Pride 12895 *d.* Rougham Lady Ethel 25950 *by* Son of Fire 9023.
710 R. N.—Major J. W. Barclay, Woodlands, Galleywood, Chelmsford, for **Holland Aifa.**

Class 94.—*Harness Mares or Geldings (Novice), over* 14 *and not exceeding* 15 *hands.*

720 I. (£15.)—H. J. Colebrook, Fulmer, Bucks, for **Glenavon Crest G 290**, brown bay gelding, born in 1919, bred by McCall Bros., Burnhead, Kilsyth; *s.* Mathias 6473, *d.* Burnhead Countess Campion 22434 *by* Adderley 10054.
708 II. (£10.)—Enoch Glen, Kaim Park, Bathgate, Scotland, for **Glenavon Ringmistress 25561**, chestnut mare, born in 1920, bred by H. C. Callaby, Caley Stud Farm, Heacham, King's Lynn; *s.* Leopard 9783, *d.* Terrington Hebe 20279 *by* Goldfinder 6th 1791.
730 III. (£5.)—J. R. Skellern, 5 Stanley Street, Wrexham, for **Trillo Princess**, dark bay mare, born in 1920, bred by John Jones and Son, Dinarth Hall, Colwyn Bay; *s.* Danum Orchid, *d.* Lady Confini *by* Confidant.

Class 95.—*Harness Mares or Geldings (Novice), over* 15 *hands.*

701 I. (£15, & R. N. for Champion.[3])—William S. Miller, Balmanno Castle, Bridge of Earn, N.B., for **Knight Banneret G 329**, chestnut gelding, born in 1919, bred by H. C. Callaby, Caley Farm, Heacham; *s.* Mathias 6473, *d.* Terrington Hebe *by* Goldfinder 6th 1791.
739 II. (£10.)—Robert Black, The Grove, Osbaldwick, York, for **Perfect Knight G 292**, chestnut gelding, born in 1919, bred by T. Stephenson, West View, Goodmanham; *s.* Angram Majesty 11967, *d.* Forest Dell 23107 *by* Polonius 4931.

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[1] Silver Challenge Cup, value Twenty-five Guineas, given by a Member of the R.A.S.E. for the best animal in Classes 88 to 90.

[2] Prizes given by the Leicester Local Committee.

[3] Gold Challenge Cup, value Fifty Guineas, given by a Member of the Hackney Horse Society for the best Animal in the Novice Classes 93 to 95.

698 III. (£5.)—John Highst, Wardhead, Stewarton, N.B., for **Lady Grace**, bay mare, born in 1919, bred by Alex Morton, Gowanbank, Darvel; *s.* Mathias 6473, *d.* Golden Crest 23574 *by* Polonius 4931.

727 IV. (£3.)—Paul Hoffmann, 4 Cardigan Mansions, Richmond Hill, Surrey, for **Orford Lady Gay** 25254, dark chestnut mare, born in 1918, bred by the late Charles Wilkinson, East Hanningfield; *s.* Leopard 9783, *d.* Lady Rosonius 24000 *by* Forthright 11433.

737 R. N.—Philip Smith, Haddon House, Ashton-on-Mersey, for **Haddon Councillor**.

Class 96.—*Harness Mares or Geldings, not exceeding* 14 *hands, to be driven by Amateurs, who must be the Exhibitors or Members of the Exhibitor's family.*

694 I. (£15.)—Richard Belcher, High Street, West Bromwich, for **Buckley Searchlight** G 100, brown gelding, born in 1914, bred by W. O. Smethurst, Woodfold. Bury, Lancs; *s.* Torchfire 9472, *d.* Walshaw Sunlight 24608 *by* Ganymede 2076.

715 II. (£10.)—Joseph Smith, 56 Victoria Road East, Leicester, for **Redhill Princess**, bay mare, born in 1914, bred by Bertram W. Mills, The Manor House, Little Berkhamsted, Herts; *s.* Pinderfields Horace 7952, *d.* Redhill Countess *by* Winnal George 2440.

710 III. (£5.)—Major J. W. Barclay, Woodlands, Galleywood, Chelmsford, for **Holland Aifa** 25445, bay mare, born in 1919, bred by Mrs. J. van Nievelt van Hattum, Camilla Lacey, Dorking; *s.* Holland Donar 13219, *d.* Holland Cynthia 24524 *by* Fusee 12626.

Class 97.—*Harness Mares or Geldings, over* 14 *hands, to be driven by Amateurs, who must be the Exhibitors or Members of the Exhibitor's family.*

723 I. (£15.)—H. J. Colebrook, Fulmer, Bucks.

691 II. (£10.)—Richard Belcher, High Street, West Bromwich, for **Preston Adriatic** 24784, chestnut mare, born in 1918, bred by Seton M. Thomson, Linlithgow; *s.* Mathias 6473, *d.* Preston Pacific 20954 *by* Matchless of Londesboro 1517.

716 III. (£5.)—Joseph Smith, 56 Victoria Road East, Leicester, for **Leicester's Fascination** 25438, chestnut mare, born in 1917, bred by J. O. Nicol, 142 London Road, Leicester; *s.* Mathias 6473, *d.* Westfield Surprise 21744 *by* Paddock Polonius 7208.

Class 98.—*Harness Mares or Geldings, not exceeding* 13·2 *hands.*

692 I. (£15, Champion,[1] R. N. for Champion,[2] & R. N. for Champion.[3])—Richard Belcher, High Street, West Bromwich, for **Glenavon Gunfire** G 337, bay gelding, born in 1920, bred by Enoch Glen, Kaim Park, Bathgate; *s.* Melbourne Shot 13055, *d.* Glenavon Princess Caprice 23129 *by* Fireboy 7440.

738 II. (£10.)—Sam Holdsworth, 9 Stanmore Place, Lidget Green, Bradford, for **Buckley Sunrise** 25511, bay mare, born in 1919, bred by C. F. Kenyon, Steele, Whitchurch, Salop; *s.* Successful 8314, *d.* Tissington Golden Ray 18691 *by* Goldfinder 6th 1791.

713 III. (£5.)—Joseph Smith, for **Cestrian Mascot**. (See Class 93.)

715 IV. (£3.)—Joseph Smith, for **Redhill Princess**. (See Class 96.)

Class 99.—*Harness Mares or Geldings, over* 13·2 *and not exceeding* 14 *hands.*

686 I. (£15, & R. N. for Champion.[1])—Robert Black, The Grove, Osbaldwick, York, for **Buckley Fame** G 178, bay gelding, born in 1917, bred by the late W. Cliff, Melbourne Hall, York; *s.* Melbourne Shot 13055, *d.* Phyllis Melbourne 23281 *by* Melbourne Hall 11510.

694 II. (£10.)—Richard Belcher, for **Buckley Searchlight**. (See Class 96.)

695 III. (£5.)—John Highst, for **Queen of Trumps**. (See Class 93.)

685 IV. (£3.)—Robert Black, for **Habrough Shot**. (See Class 93.)

Class 100.—*Harness Mares or Geldings, over* 14 *and not exceeding* 15 *hands.*

703 I. (£15, Champion,[2] & Champion.[3])—William S. Miller, Balmanno Castle, Bridge of Earn, N.B., for **Charm** 25396, brown mare, born in 1917, bred by Enoch Glen, Bathgate; *s.* Harviestoun Mahratta 12650, *d.* Glenavon Pearl 23567 *by* Mathias 6473.

724 II. (£10.)—H. J. Colebrook, Fulmer, Bucks, for **Netherfield Argenteau** G 66, brown bay gelding, born in 1916; *s.* Mathias 6473, *d.* Braishfield Chiffon 22414 *by* Berry Hill Snap 8739.

716 III. (£5.)—Joseph Smith, for **Leicester's Fascination**. (See Class 97.)

730 IV. (£3.)—J. R. Skellern, for **Trillo Princess**. (See Class 94.)

Class 101.—*Harness Mares or Geldings, over* 15 *and not exceeding* 15·2 *hands.*

705 I. (£15.)—William S. Miller, Balmanno Castle, Bridge of Earn, N.B., for **Dark Legend** G 104, chestnut gelding, born in 1917, bred by D. A. Engel; *s.* Mathias 6473, *d.* Hemlington Fairplay 21394 *by* Hopwood Viceroy 9280.

691 II. (£10.)—Richard Belcher, for **Preston Adriatic**. (See Class 97.)

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[1] Silver Challenge Cup, value Twenty-five Guineas, given by the National Terrier Club for the best Pony not exceeding 14 hands, in Classes 98 and 99.

[2] Gold Challenge Cup, value Fifty Guineas, given by Hackney Breeders interested in Harness Horses for the best Animal in Classes 96 to 102.

[3] Champion Prize of £5 given by the Hackney Horse Society for the best Mare or Gelding in Classes 93 to 102, the produce of a registered Hackney Stallion.

725 **III.** (£5.)—H. J. Colebrook, Fulmer, Bucks, for **Fulmer Pilot.**
728 **IV.** (£3.)—Paul Hoffmann, 4 Cardigan Mansions, Richmond Hill, Surrey, for **Orford Hero** G 246, dark chestnut gelding, born in 1915, bred by Frank Yee, Malton; *s.* Craganour 12343, *d.* Huggate Madge 19994 *by* Ganymede 2076.

Class 102.—*Harness Mares or Geldings, over* 15·2 *hands.*

746 **I.** (£15.)—Bertram W. Mills, The Manor House, Little Berkhamsted, Herts, for **Edgware Duke** G 179, black gelding, born in 1917, bred by G. McGowan, Salt End, Hedon, Hull; *s.* King's Proctor 11102, *d.* Lady Campion 19253 *by* Mathias 6473.
706 **II.** (£10.)—William S. Miller, Balmanno Castle, Bridge of Earn, N.B., for **Knight Errant** G 165, bay gelding, born in 1916, bred by C. Humphreys, Birkenhead; *s.* Mathias 6473, *d.* Calabar Canadian Girl 19815 *by* Garton Duke of Connaught 3009.
698 **III.** (£5.)—John Highet, for **Lady Grace.** (See Class 95.)
693 **IV.** (£3.)—Richard Belcher, High Street, West Bromwich, for **Gay Fashion** G 302, chestnut gelding, born in 1918, bred by W. J. Tennant, Scarborough; *s.* Carleton Quality 12595, *d.* Marcle Lily 18406 *by* Royal Danegelt 5785.
739 **R. N.**—Robert Black, The Grove, Osbaldwick, York, for **Danesfoot.**

DOUBLE HARNESS.

Class 103.—*Harness Mares or Geldings, not exceeding* 15 *hands.*

734 & 735 **I.** (£20, & Champion.[1])—Nigel C. Colman, 1 Upper Grosvenor Street, London, W. for **Silhouette of Nork** 25770, brown mare, born in 1918; *s.* Mathias A.1 10751, *d.* Cristolia 17233 *by* Polonius 4931; and **Lochardil** G 217, brown gelding, born in 1919, bred by Mrs. J. E. Logan, Doon Bank, Inverness; *s.* Lord Lucy 13623, *d.* Granny 22571 *by* Mathias 6473.
720 & 724 **II.** (£15.)—H. J. Colebrook, for **Glenavon Crest** (see Class 94), and **Netherfield Argenteau** (see Class 100.)
685 & 686 **III.** (£10.)—Robert Black, for **Habrough Shot** (see Class 93), and **Buckley Fame** (see Class 99.)
713 & 715 **IV.** (£5.)—Joseph Smith, for **Cestrian Mascot** (see Class 93), and **Redhill Princess** (see Class 96.)

Class 104.—*Harness Mares or Geldings, over* 15 *hands.*

706 & 707 **I.** (£20, & R. N. for Champion.[1])—William S. Miller, for **Knight Errant** (see Class 102); and **Knight Templar** G 156, bay gelding, born in 1918, bred by J. Chivers, Cambridge; *s.* Mathias 6473, *d.* Inverness Duchess of Connaught 15192 *by* Garton Duke of Connaught 3009.
746 & 749 **II.** (£15.)—Bertram W. Mills, for **Edgware Duke** (see Class 102), and **Edgware Count** G. 338, black gelding, born in 1915, bred by Mrs. Logan, Suddie, Munlochy; *s.* Polonius 4931, *d.* Granny 22571 G. *by* Mathias 6473.
722 & 725 **III.** (£10.)—H. J. Colebrook, Fulmer, Bucks, for **Fulmer Pilgrim** and **Fulmer Pilot.**
727 & 728 **IV.** (£5.)—Paul Hoffmann, for **Orford Lady Gay** (see Class 95), and **Orford Hero** (see Class 101).

TANDEMS.

Class 105.—*Harness Mares or Geldings, not exceeding* 15 *hands.*

720 & 724 **I.** (£20, & Champion.[2])—H. J. Colebrook, for **Glenavon Crest** (see Class 94), and **Netherfield Argenteau** (see Class 100).
685 & 686 **II.** (£15.)—Robert Black, for **Habrough Shot** (see Class 93), and **Buckley Fame** (see Class 99).

Class 106.—*Harness Mares or Geldings, over* 15 *hands.*

746 & 749 **I.** (£20, & R. N. for Champion.[2])—Bertram W. Mills, for **Edgware Duke** (see Class 102), and **Edgware Count** (see Class 104).
722 & 725 **II.** (£15.)—H. J. Colebrook, for **Fulmer Pilgrim** and **Fulmer Pilot.**
727 & 728 **III.** (£10.)—Paul Hoffmann, for **Orford Lady Gay** (see Class 95) and **Orford Hero** (see Class 101).

Four-in-Hand Teams.

Class 107.—*Mares or Geldings.*

741 **I.** (£30.)—W. A. Barron, 91 Westbourne Terrace, London, W., for four chestnuts.
750 **II.** (£25.)—Bertram W. Mills, The Manor House, Little Berkhamsted, for four blacks.
743 **III.** (£20.)—W. W. Theobald, Bournside, Cheltenham, for four chestnuts.
588 **IV.** (£15.)—C. J. Phillips, Old Dalby Hall, Melton Mowbray, for four bay browns.

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[1] The "Glasgow" Gold Challenge Cup, value Fifty Guineas, given by a member of the R.A.S.E., for the best Pair in Classes 103 and 104.

[2] Gold Challenge Cup, value Fifty Guineas, given by a member of the R.A.S.E. for the best Tandem in Classes 105 and 106.

CATTLE.

Shorthorns.

Class 113.—*Shorthorn Bulls, born in or before* 1921.

782 I. (£15, Champion,[1] & R. N. for Cup.[2])—J. M. Strickland, Bainesse, Catterick, for **Brandsby's Lord Ramsden 7th** 169452, roan, born June 2, 1921 ; *s.* Brandsby's Undine King 154226, *d.* Brandsby's Miss Ramsden 3rd *by* Brandsby's Count 6th 129815.

773 II. (£10.)—Colonel H. T. Fenwick, Stenigot, Louth, for **Naemoor Darnly** 185534, red, born Feb. 21, 1920, bred by J. J. Moubray, Naemoor, Rumbling Bridge, N.B. ; *s.* Garbity Field Marshal 142541, *d.* Princess Viola *by* Broadhooks Diamond 124530.

771 III. (£5.)—G. L. T. Brudenell, Deene Park, Peterborough, for **Deene Lucanus** 180142, roan, born May 7, 1921 ; *s.* Bridgebank Paymaster 154308, *d.* Inverton Luxurious 34074 *by* Drummond Chieftain 142088.

770 IV. (£4.)—Edgar W. Bishop, Fifield, Oxford, for **Diamond Conqueror** 171002, roan, born Oct. 24, 1921, bred by the Misses Scott, Nether Swell Manor, Stow-on-the-Wold ; *s.* Swinton St. Pierre 145820, *d.* Diamond Actress *by* Diamond Star 91479.

779 V. (£3.)—Albert James Marshall, Bridgebank, Stanraer, for **Bridgebank Mahdi** 169540, dark roan, born Feb. 4, 1921 ; *s.* Bridgebank Paymaster 154308, *d.* Jilt's Mayflower *by* Rubicon 110047.

776 R. N.—Harry Hirsch, The Grove, Weetwood, Leeds, for **Brandsby's D.S.O.**

Class 114.—*Shorthorn Bulls, born on or between January* 1 *and March* 31, 1922.[3]

785 I. (£15.)—Hugh Baker, Chedglow, Malmesbury, for **Christian Monument** 179470, roan, born Jan. 21 ; *s.* Christian Augustus 135715, *d.* Scottish Primrose 2nd *by* Christmas Box 108178.

786 II. (£10.)—Hugh Baker, for **Crown of Metal** 179903, red, born Feb. 25 ; *s.* Grand Champion 120527, *d.* Ceres 51st *by* Christmas Box 108178.

785, 786, 876 Special £15.[4]—Hugh Baker, for **Christian Monument, Crown of Metal** and **Ceres 71st.**

Class 115.—*Shorthorn Bulls, born on or between April* 1 *and December* 31, 1922.

793 I. (£15, & R. N. for Champion.[1])—H.R.H. The Prince of Wales, K.G., Marsh Farm, Landulph, Hatt, Cornwall, for **Balcairn Watchword** 178022, roan, born April 17, bred by F. L. Wallace, Balcairn, Old Meldrum ; *s.* Diamond Butterfly 155319, *d.* Edgcote Warfare *by* Earl of Kingston 120041.

794 II. (£10.)—Major Clive Behrens, Swinton Grange, Malton, for **Swinton Regent** 185567, roan, born June 9 ; *s.* Calrossie Regent 161916, *d.* Swinton Proud Rosebud *by* Swinton St. Pierre 145820.

800 III. (£5.)—Captain K. S. Hunter, Highthorne, Husthwaite, York, for **Bainesse Count 4th** 177973, red and little white, born Sept. 26, bred by J. M. Strickland, Bainesse, Catterick ; *s.* Calrossie Regent 161916, *d.* Brandsby's Tulip 6th *by* Welcome Guest 140083.

797 IV. (£4.)—A. D. Grant, Winkfield Manor Farm, Ascot, for **Harviestoun Golden Rule** 181456, roan, born Dec. 18, bred by J. E. Kerr, Harviestoun Castle, Dollar, N.B. ; *s.* Harviestoun Duke Augustus 172273, *d.* Golden Glory 14823 *by* Donne Augustus 142054.

801 R. N.—Mrs. Hutchinson, Sarsden Glebe, Kingham, Oxon, for **Cerney Oddfellow.**

Class 116.—*Shorthorn Bulls, born on or between January* 1 *and March* 31, 1923.[3]

830 I. (£15.)—George Swift, Cropthorne, Pershore, for **Haselor Butterman,** white, born Jan. 28 ; *s.* Collynie Clipper King 135816, *d.* Tongswood Butterfly 3495 *by* Knight Lavender 121046.

817 II. (£10.)—George Harrison, Gainford Hall, Darlington, for **Gainford Rapture,** roan, born March 25 ; *s.* Doune Meteor 171087, *d.* Nancy Rosebud 5579 *by* Broadhooks Diamond 124530.

806 III. (£5.)—Alexander and Addie, Newbiggin, Cambus, Stirling, for **Calrossie Crocus King,** roan, born Feb. 23, bred by John MacGillivray, Calrossie, Nigg ; *s.* White Prince 168014, *d.* Stoneytown Crocus 3rd 5462 *by* Redgorton Earl 144805.

811 IV. (£4.)—G. L. T. Brudenell, Deene Park, Peterborough, for **Deene Aulic Councillor,** white, born Jan. 29 ; *s.* Deene Lucanus 180142, *d.* Deene Augusta 2nd 21674 *by* Naemoor Boniface 150741.

816 V. (£3.)—George Harrison, for **Gainford Jeweller,** roan, born March 16 ; *s.* Rickford Marquis 166467, *d.* Primrose Bloom 3rd (Vol. 64, p. 961) *by* Knapton Jeweller 2nd 126343.

827 R. N.—Mrs. Frances Pumphrey, Hindley Hall, Stocksfield, for **Hindley Chieftain.**

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[1] Champion Prize of £20 given by the Shorthorn Society, for the best Bull in Classes 113 to 118. A Silver Medal is given by the Shorthorn Society to the Breeder of the Champion Bull.

[2] The "Brothers Colling" Memorial Perpetual Challenge Cup, value Three Hundred Guineas, given through the Durham Agricultural Committee for the best Shorthorn in Classes 113 to 123.

[3] Prizes given by the Shorthorn Society.

[4] Special Prizes of £15 First Prize, and £10 Second Prize, given by the Shorthorn Society for the best groups of three animals bred by Exhibitor in Classes 113 to 123.

Class 117.—*Shorthorn Bulls, born on or between April* 1 *and June* 30, 1923.

854 **I. (£15.)**—Sir George A. Wills, Bt., Langford Court Farm, Langford, Bristol, for **Rickford Enchanter,** dark roan, born April 6; *s.* Collynie Royal Regent 148043, *d.* Eliza Lotus (Vol. 65, p. 1254) *by* Marquis of Millhills 137868.

842 **II. (£10.)**—William Garne, Ablington, Fairford, Glos, for **Aldsworth Guard,** roan, born April 16; *s.* Cerney Oyster 162053, *d.* Aldsworth Golden Drop 13087 *by* Augusta Diamond 3rd 123964.

834 **III. (£5.)**—Alexander & Addie, Newbiggin, Cambus, Stirling, for **Cambus Druid,** dark roan, born June 19; *s.* Abbeymains Combatant 168245, *d.* Perfection 1983 *by* Royal Cupbearer 145105.

833 **IV. (£4.)**—H.R.H. The Prince of Wales, K.G., Marsh Farm, Landulph, Hatt, Cornwall, for **Climsland Knight 3rd,** dark roan, born May 26; *s.* Butterfly Knight 130029, *d.* Maid of Promise 15th 18090 *by* Norseman of Harviestoun 150829.

850 **V. (£3.)**—John Heaton, Low Startforth Hall, Barnard Castle, for **Startforth Benedict,** dark roan, born May 20; *s.* Swinton St. Pierre 145820, *d.* Rosehaugh Butterfly (Vol. 63, p. 825) *by* Collynie Matadore 111337.

853 **R. N. & Special £5.**[1]—Francis C. Stevenson, The Manor House, Swepstone, Leicester, for **Golden Gleam.**

837 **Special £10.**[1]—Miss Sylvia Brocklebank, O.B.E., Wing Grange, Oakham, for **Balcairn Golden Monarch.**

842, 858, 865 **Special £10.**[2]—William Garne, for **Aldsworth Guard, Aldsworth Promise,** and **Aldsworth Bangle.**

Class 118.—*Shorthorn Bulls, born on or between July* 1 *and December* 31, 1923.[3]

858 **I. (£15.)**—William Garne, Ablington, Fairford, Glos, for **Aldsworth Promise,** red, born July 8; *s.* Millrig Matadore 174144, *d.* Aldsworth Petunia (Vol. 64, p. 918) *by* Aldsworth Chief 129107.

855 **II. (£10.)**—Alexander & Addie, Newbiggin, Cambus, Stirling, for **Cambus Deacon,** roan, born Oct. 28; *s.* Abbeymains Combatant 168245, *d.* Lavender Colleen (Vol. 65, p. 1218) *by* Red Viscount 138829.

856 **III. (£5.)**—Colonel Curre, Itton Court, Chepstow, for **Notlaw Newark,** roan, born Aug. 16, bred by Dr. Vaughan Harley, Walton Hall, Bletchley; *s.* Notlaw Luck 138276, *d.* Notlaw Nonpareil 16th (Vol. 61, p. 778) *by* Gartly Landlord 115511.

862 **IV. (£4.)**—Mrs. Frances Pumphrey, Hindley Hall, Stocksfield, for **Secret Star,** red roan, born July 8, bred by J. J. Thompson, Temperley Grange, Corbridge-on-Tyne; *s.* Double Event 162830, *d.* Hindley Secret 7th 29025 *by* Edgcote Clipper Star 142212.

863 **R. N.**—Sir George A. Wills, Bt., Langford Court Farm, Langford, Bristol, for **Rickford Rosebud King.**

Class 119.—*Shorthorn Cows (in-milk), born in or before* 1920.

865 **I. (£15.)**—William Garne, Ablington, Fairford, Glos, for **Aldsworth Bangle,** 13082, roan, born July 31, 1920, calved Jan. 15, 1924; *s.* Augusta Diamond 3rd 123964, *d.* Ringlet *by* Village Diamond 100981.

869 **II. (£10.)**—William Woof, Clawthorpe Hall, Burton, Westmorland, for **Rosebud** (Vol. 65, p. 1216), dark roan, born Dec. 1, 1918, calved Nov. 24, 1923; *s.* Smiling Yet 133640, *d.* Red Rosebud *by* Rosebery 117391.

868 **III. (£5.)**—J. M. Strickland, Bainesse, Catterick, for **Brandsby's Princess 15th** 8098, roan, born Feb. 4, 1919, calved Jan. 5, 1924; *s.* Ardlethen Lavender Knight 140489, *d.* Brandsby's Princess 15th *by* Bapton Judge 82768.

864 **R. N.**—G. L. T. Brudenell, Deene Park, Peterborough, for **Daisy of Viewfield.**

Class 120.—*Shorthorn Heifers (in-milk), born in* 1921.

873 **I. (£15.)**—The Hon. Mrs. Bruce Ward, Godinton, Ashford, Kent, for **Godinton Jilt** 31382, roan, born Feb. 4, calved Nov. 4, 1923; *s.* Dewlaps Royal Sovereign 125170, *d.* Adbolton Jilt *by* Adbolton Thalia King 2nd 110696.

Class 121.—*Shorthorn Heifers, born in* 1922.

876 **I. (£15, Cup,[4] & Champion.[5])**—Hugh Baker, Chedglow, Malmesbury, for **Ceres 71st** 33071, roan, born March 6; *s.* Grand Champion 120527, *d.* Ceres 47th *by* Roderick Random 106823.

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[1] Two Special District Prizes given, (I.) £10 by the Shorthorn Society, for the best Bull, (II.) £5 by the Leicestershire Agricultural Society, for the second best Bull in Classes 116, 117 and 118, the property of Exhibitors residing in Leicestershire or Rutland. A Silver Medal is given by the Shorthorn Society to the Breeder of the animal winning the £10 District Prize.

[2] Special Prizes of £15 First Prize, and £10 Second Prize, given by the Shorthorn Society for the best groups of three animals bred by Exhibitor in Classes 113 to 123.

[3] Prizes given by the Shorthorn Society.

[4] The "Brothers Colling" Memorial Perpetual Challenge Cup, value Three Hundred Guineas, given through the Durham Agricultural Committee for the best Shorthorn in Classes 113 to 123.

[5] Champion Prize of £20 given by the Shorthorn Society, for the best Cow or Heifer in Classes 119 to 123. A Silver Medal is given by the Shorthorn Society to the Breeder of the Champion Cow or Heifer.

883 II. (£10, & R. N. for Champion.[1])—Lord Desborough, K.C.V.O., Panshanger, Hertford, and Taplow Court, Bucks, for **Denton Betty** 36916, roan, born April 12, bred by Arthur Green, Denton, Ben Rhydding, Leeds; *s.* Collynie Lavender King 141709, *d.* Airedale Queen *by* Rambler 122295.

888 III. (£5.)—Lord Sherborne, Sherborne Park, Northleach, for **Golden Lassie** 42352, roan, born June 19; *s.* Hindley Snowstorm 142969, *d.* Notlaw Pure Gold 23rd 3609 *by* Notlaw Luck 138276.

891 IV. (£4.)—J. and H. P. Webster, Abbey Farm, Yedingham, West Heslerton, Malton, for **Abbey Farm Waterloo 2nd** 44026, roan, born Aug. 17; *s.* Swinton Royal Warrior 152462, *d.* Derwent Waterloo 31st *by* Knapton Waterloo 23rd 121041.

879 V. (£3.)—Major Clive Behrens, Swinton Grange, Malton, for **Swinton Dairymaid** 33360, red, born Sept. 3; *s.* Engineer 120145, *d.* Pittodrie Dairymaid 3rd *by* Chief Guardian 124739.

880 R. N.—Sir James Bell, Bellfield, Willerby, Hull, for **Bellfield Broadhooks.**

Class 122.—*Shorthorn Heifers, born on or between January* 1 *and March* 31, 1923.

906 I. (£15.)—Archibald Nettlefold, The Park, Wrotham, Kent, for **Wrotfold Fragrance**, roan, born Feb. 26; *s.* Garbity Grand Parade 163449, *d.* Fairlawne Fragrance 2nd (Vol. 65, p. 668) *by* Fairlawne Clansman 130915.

898 II. (£10.)—George Harrison, Gainford Hall, Darlington, for **Gainford Nonpareil Rosa 4th**, roan, born Feb. 10; *s.* Rickford Marquis 166467, *d.* Gainford Nonpareil Rosa 3651 *by* Quartermaster 132925.

892 III. (£5.)—His Majesty the King, The Royal Farms, Windsor, for **Windsor Rothes Queen**, dark roan, born March 27; *s.* Pellipar Airman 165821, *d.* Queen of Rothes 7th (Vol. 64, p. 757) *by* Collynie Regal Lavender 114770.

894 IV. (£4.)—G. L. T. Brudenell, Deene Park, Peterborough, for **Deene Butterfly 5th**, roan, born Jan. 29; *s.* Deene Lucanus 180142, *d.* Deene Butterfly 3rd 21676 *by* Naemoor Boniface 150741.

909 V. (£3.)—Lord Sherborne, Sherborne Park, Northleach, for **Sherborne Mistletoe**, white, born Feb. 24; *s.* Slaughter Mintmaster 176203, *d.* Appleton Missie 3rd 10068 *by* Secret Symbol 145346.

893 R. N.—Fred Allison, Lilac Farm, Yedingham, West Heslerton, for **Yedingham Mina 2nd.**

Class 123.—*Shorthorn Heifers, born on or between April* 1 *and December* 31, 1923.

913 I. (£15.)—His Majesty the King, The Royal Farms, Windsor, for **Windsor Carnation**, dark roan, born April 22; *s.* Edgcote Flatterer 125374, *d.* Hathaway 7th (Vol. 59, p. 1031) *by* Proud Victor 103447.

919 II. (£10.)—George Harrison, Gainford Hall, Darlington, for **Gainford Pauline 11th**, roan, born April 9; *s.* Collynie Challenger 148032, *d.* Gainford Pauline 4th (Vol. 64, p. 961) *by* Collynie Mandarin 119552.

921 III. (£5.)—Mrs. Hutchinson, Sarsden Glebe, Kingham, Oxon, for **Cerney Orange Blossom 4th**, red, born May 25; *s.* Edgcote Albion 142205, *d.* Cerney Orange Bloom 5009 *by* Edgcote Prince 142222.

917 IV. (£4.)—Miss Sylvia Brocklebank, O.B.E., Wing Grange, Oakham, for **Wing Duchess 2nd**, roan, born June 3; *s.* Mike 157751, *d.* Lichfield Duchess (Vol. 65, p. 604) *by* Lichfield Duke 131923.

924 V. (£3.)—The Hon. Mrs. Bruce Ward, Godinton, Ashford, Kent, for **Godinton Jilt 2nd**, roan, born June 13; *s.* Dewlaps Royal Sovereign 125170, *d.* Adbolton Jilt (Vol. 61, p. 794) *by* Adbolton Thalia King 2nd 110696.

916 R. N.—Major Clive Behrens, Swinton Grange, Malton, for **Swinton Lady Mary 3rd.**

Herefords.

Class 124.—*Hereford Bulls, born on or before August* 31, 1921.

927 I. (£15, Champion,[2] & Champion.[3])—David P. Barnett, Walterston, Llancarfan, Cowbridge, for **Apsam** 40433, born April 24, 1921; *s.* Walterston Sam 38309, *d.* Shelsley Lucy *by* Eaton Sovereign 26832.

928 II. (£10.)—Henry R. Evans, Court of Noke, Pembridge, for **Charles 2nd** 36303, born Jan. 26, 1919, bred by Major R. L. Heygate, The Wells, Bromyard; *s.* Pretender 31846, *d.* Seabird *by* Mariner 28468.

931 III. (£5.)—E. D. Moore, Brampton Brian, Herefordshire, for **Wickton Comrade** 40297, born March 28, 1920, bred by Newman Bros., Wickton, Leominster; *s.* Patchworth 34099, *d.* Evesbatch Curly 451st *by* Tumbler 17588.

930 R. N.—Major T. H. Montgomery, D.S.O., Hampton Hall, Worthen, Salop, for **Yatton Ruler.**

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[1] Champion Prize of £20 given by the Shorthorn Society, for the best Cow or Heifer in Classes 119 to 123. A Silver Medal is given by the Shorthorn Society to the Breeder of the Champion Cow or Heifer.

[2] Champion Prize of £10 10*s.* given by the Hereford Herd Book Society, for the best Bull in Classes 124 to 128.

[3] Perpetual Silver Challenge Trophy, value One Hundred Guineas, given through the Hereford Herd Book Society, for the best Bull in Classes 124 to 128.

Class 125.—*Hereford Bulls, born on or between September* 1, 1921, *and August* 31, 1922.

940 I. (£15, R. N. for Champion,[1] & R. N. for Champion.[2])—OWEN WILLIAMS, Crossways, Cowbridge, for **Crossways Grovlute** 40768, born March 1, 1922; *s.* Resolute 35537, *d.* Miss Grove 5th *by* Blair Athol 23296.

939 II. (£10.)—CAPTAIN R. T. HINCKES, Mansel Court, Hereford, for **Farmington Monk** 42293, born Feb. 12, 1922, bred by Lieut.-Col. C. D. Barrow, Farmington Lodge, Northleach; *s.* Farmington Noble 39153, *d.* Maria *by* Monktonian 28500.

936 III. (£5.)—HENRY R. EVANS, Court of Noke, Pembridge, for **Astronomer** 41894, born Jan. 1, 1922, bred by Major K. R. Pettit, Castle Weir, Kington, Herefordshire; *s.* Star Comedian 40058, *d.* Eastern Star *by* Sheikh Nuran 35605.

937 R. N.—WILLIAM EVERALL, Shrawardine Castle, Shrewsbury, for **Freetown Renown.**
H. C.—935.

Class 126.—*Hereford Bulls, born on or between September* 1 *and November* 30, 1922.[3]

941 I. (£15.)—H. WESTON AND SONS, The Bounds, Much Marcle, Dymock, for **Bounds Nelson** 43362, born Sept. 8; *s.* Bounds Justice 36106, *d.* Dove 2nd *by* Bounds Democrat 30333.

Class 127.—*Hereford Bulls, born on or between December* 1, 1922, *and February* 28, 1923.

943 I. (£15.)—LAURITS BLAKSTAD, The Priory, Clifford, Hereford, for **Priory Norseman**, born Jan. 14, 1923; *s.* Priory Resolute 41505, *d.* Cornelia (Vol. 51, p. 681) *by* Leen Vistula 31664.

950 II. (£10.)—ERNEST STEVENS, Chapel Farm, Elmley Castle, Pershore, for **Pershore Smiles**, born Dec. 28, 1922; *s.* Ringer 31920, *d.* Joy (Vol. 49, p. 623) *by* Masterpiece 29896.

953 III. (£5.)—CHARLES H. TINSLEY, Twyford, Pembridge, for **Twyford Edgar**, born Jan 28, 1923; *s.* Twyford Fairy Boy 40171, *d.* Eva *by* Anchor 32185.

951 IV. (£4.)—E. CRAIG TANNER, Eyton-on-Severn, Cross Houses, Salop, for **Eyton Omen**, born Jan. 4, 1923; *s.* Double Crown 36582, *d.* Montford Firma 5th (Vol. 48, p. 801) *by* Lowland 26986.

954 V. (£3.)—JOHN WALKER, Knightwick Manor, Worcester, for **Knightwick Omega** 43842, born Jan. 6, 1923; *s.* Aldersend Patrician 38472, *d.* Knightwick Oyster *by* Eaton Hotspur 36631.
H. C.—946, 947. C.—942, 945.

Class 128.—*Hereford Bulls, born on or after March* 1, 1923.

964 I. (£15.)—MRS. R. S. DE Q. QUINCEY, The Vern, Bodenham, Herefordshire, for **Bodenham Escort**, born March 1, bred by Mrs. E. Medlicott, The Court Farm, Bodenham; *s.* Eaton Leader 40882, *d.* Bodenham Gipsy Girl (Vol. 53, p. 462) *by* Admiral Gipsy 34527.

965 II. (£10.)—A. W. TROTMAN, Byford Court, Bridge Sollers, Hereford, for **Byford Merryman** 43451, born March 27; *s.* Conway 32398, *d.* Mirthful *by* Sir Sam 33131.

957 III. (£5.)—LT.-COL. C. D. BARROW, Farmington Lodge, Northleach, for **Farmington Chevalier** 43692, born March 3; *s.* Farmington Noble 39153, *d.* Maria (Vol. 40, p. 651) *by* Monktonian 28500.

963 IV. (£4.)—W. J. PITT, The Albynes, Bridgnorth, for **Albynes Leo**, born March 1; *s.* Paunton Peter 39739, *d.* Brampton Lily 22nd (Vol. 51, p. 592) *by* Eaton Sensation 24566.

958 V. (£3.)—LT.-COL. C. D. BARROW AND CAPT. R. T. HINCKES, Farmington Lodge, Northleach, and Foxley, Hereford, for **Wickton Gaylad**, born April 2, bred by F. J. Newman, Lower Wickton, Leominster; *s.* Patchwork 34099, *d.* Gaylass (Vol. 50, p. 759) *by* Baron Gipsy 30277.

961 R. N.—CAPTAIN R. T. HINCKES, Mansel Court, Hereford, for **Priory Hillman.**
H. C.—960.

Class 129.—*Hereford Cows or Heifers (in-milk), born on or before August* 31, 1921.

973 I. (£15, & Champion.[4])—OWEN WILLIAMS, Crossways, Cowbridge, for **Crossways Opal** (Vol. 50, p. 1019), born Jan. 6, 1919, calved Jan. 30, 1924; *s.* Ringer 31920, *d.* Sheepcote Opal *by* Milton 25571.

971 II. (£10.)—E. CRAIG TANNER, Eyton-on-Severn, Cross Houses, Salop, for **Duchess 2nd** (Vol. 49, p. 857), born Feb. 3, 1917, calved Dec. 20, 1923; *s.* Shraden Frederick 33113, *d.* Duchess *by* Curfew 27476.

968 III. (£5.)—DAVID P. BARNETT, Walterston, Llancarfan, Cowbridge, for **Snowdrop** (Vol. 52, p. 199), born Jan. 22, 1921, calved Jan. 3, 1924; *s.* Walterston Sam 38309, *d.* Dolesome *by* Sir Sam 33131.

972 R. N.—THOMAS L. WALKER, The Cedars, Broadwas-on-Teme, Worcester, for **Ankerdine Agony.**

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[1] Champion Prize of £10 10*s.* given by the Hereford Herd Book Society, for the best Bull in Classes 124 to 128.

[2] Perpetual Silver Challenge Trophy, value One Hundred Guineas, given through the Hereford Herd Book Society, for the best Bull in Classes 124 to 128.

[3] Prizes given by the Hereford Herd Book Society.

[4] Champion Prize of £10 10*s.* given by the Hereford Herd Book Society for the best Cow or Heifer in Classes 129 to 132.

Class 130.—*Hereford Heifers, born on or between September* 1, 1921, *and August* 31, 1922.

974 I. (£15, & R. N. for Champion.[1])—His Majesty the King, The Royal Farms, Windsor, for **Peerless** (Vol. 53, p. 177), born March 5, 1922; *s.* Lulsley Statesman 37327, *d.* Purity 2nd *by* Paymaster 32892.

977 II. (£10.)—Sir Maurice Levy, Bt., Great Glen, Leicester, for **Glen Luxury** (Vol. 53, p. 433), born April 17, 1922; *s.* Bounds Kyrle 38638, *d.* Langoed Dandy 33892.

976 III. (£5.)—Dinam Estates Company, Llandinam, Mont., for **Dinam Agatha** (Vol. 53, p. 269), born Jan. 4, 1922, bred by David Davies, M.P., Llandinam; *s.* Resolute 2nd 39895, *d.* Agate *by* Leen Vistula 31664.

979 R. N.—Owen Williams, Crossways, Cowbridge, for **Crossways Belle 2nd.**

Class 131.—*Hereford Heifers, born on or between September* 1 *and November* 30, 1922.[2]

980 I. (£15.)—H. Weston & Sons, The Bounds, Much Marcle, Dymock, for **Princess 8th**, born Sept. 12; *s.* Bounds Justice 36106, *d.* Princess (Vol. 46, p. 1035) *by* Merry Andrew 27025.

Class 132.—*Hereford Heifers, born on or after December* 1, 1922.

981 I. (£15.)—His Majesty the King, The Royal Farms, Windsor, for **Lavender Lass**, born Jan. 5, 1923; *s.* Lulsley Statesman 37327, *d.* Lovely 2nd (Vol. 50, p. 329) *by* Paymaster 32892.

990 II. (£10.)—Sir Maurice Levy, Bt., Great Glen, Leicester, for **Glen Dasher**, born March 4, 1923; *s.* Bounds Kyrle 38638, *d.* Nan (Vol. 50, p. 502) *by* Langoed Dandy 33892.

982 III. (£5.)—His Majesty the King, for **Pinky Gem**, born Jan. 20, 1923; *s.* Lulsley Statesman 37327, *d.* Primula (Vol. 50, p. 329) *by* Paymaster 32892.

989 IV. (£4.)—Captain R. T. Hinckes, Mansel Court, Hereford, for **Mansel Mermaid 1st**, born Jan. 16, 1923; *s.* Eyton Horace 34935, *d.* Morsel (Vol 51, p. 454) *by* Scrooge 33089.

992 V. (£3.)—John Walker, Knightwick Manor, Worcester, for **Knightwick Cowslip**, born Feb. 11, 1923; *s.* Eaton Hotspur 36631, *d.* Chance (Vol. 50, p. 960) *by* Gamester 28308.

985 R. N.—Dinam Estates Company, Llandinam, Mont., for **Dinam Sunbeam.**

Sussex.

Class 133.—*Sussex Bulls, born in or before* 1922.

993 I. (£15, Champion,[3] & Champion.[4])—J. Rayner Betts, Greenhill, Otham, Maidstone, for **Otham Chevalier** 5408, born June 17, 1921; *s.* Ticehurst Chevalier 6th 4854, *d.* Ockham Lumpy 4th 15597 *by* Ockham Prince 3367.

998 II. (£10, R. N. for Champion,[3] & R. N. for Champion.[4])—Walter Phillips, The Hermitage Farm, Wateringbury, Kent, for **Bolebroke Peaceful Mariner** 5039, born Jan. 11, 1919, bred by Captain P. R. Mann, Hartfield, Sussex; *s.* Birling Tom 4472, *d.* Bolebroke Peaceful Maid 16969 *by* Burgate James 3630.

995 III. (£5.)—J. Rayner Betts, for **Otham Dog Rose** 5667, born Jan. 20, 1922; *s.* Periton Alfred 5007, *d.* Prebble Playful 18463 *by* Tutsham Nero 2nd 3526.

Class 134.—*Sussex Bulls, born in* 1923.

1005 I. (£15.)—Captain D. C. L. Speed, Knowlton Court, Canterbury, for **Knowlton Monarch 2nd** 6067, born March 9; *s.* Imperator 5100, *d.* Birling Careless 2nd 18262 *by* Birling Delight 3731.

Class 135.—*Sussex Cows or Heifers (in-milk), born in or before* 1921.

1010 I. (£15, & Champion.[5])—Walter Phillips, The Hermitage Farm, Wateringbury, Kent, for **Lock Darkey 28th** 18388, born July 21, 1918, calved April 23, 1924, bred by W. A. Thornton 8 St. Catherine's Terrace, Hove; *s.* Birling Geoffrey 2nd 4252, *d.* Darkey 8th of Lock 12690 *by* Tutsham Toreador 2016.

1008 II. (£10)—The Earl of Guilford, Waldershare Park, Dover, for **Lynwick Circus Girl 4th** 16065, born Jan. 17, 1915, calved Feb. 28, 1924, bred by John Aungier, Lynwick, Sussex; *s.* Dogwood 3227, *d.* Circus Girl 2nd 12756 *by* Masterpiece 2330.

1006 III. (£5.)—J. Rayner Betts, Greenhill, Otham, Maidstone, for **Otham Lady 2nd** 19718, born June 21, 1921, calved April 30, 1924; *s.* Ticehurst Chevalier 6th 4854, *d.* Sheldwich Lady 33rd 16044 *by* Nash Premier 6th 3446.

Class 136.—*Sussex Heifers, born in* 1922.

1014 I. (£15, & R. N. for Champion.[5])—Captain D. C. L. Speed, Knowlton Court, Canterbury, for **Knowlton Careless** 20981, born March 3; *s.* Imperator 5100, *d.* Birling Careless 2nd 18262 *by* Birling Delight 3731.

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[1] Champion Prize of £10 10*s.* given by the Hereford Herd Hook Society, for the best Cow or Heifer in Classes 129 to 132.

[2] Prizes given by the Hereford Herd Book Society.

[3] Perpetual Silver Challenge Trophy, value One Hundred Guineas, given through the Sussex Herd Book Society for the best Bull in Classes 133 and 134.

[4] Champion Silver Medal given by the Sussex Herd Book Society for the best Bull in Classes 133 and 134.

[5] Champion Silver Medal given by the Sussex Herd Book Society for the best Cow or Heifer in Classes 135 to 137.

Class 137.—*Sussex Heifers, born in* 1923.

1021 I. (£15.)—Walter Phillips, The Hermitage Farm, Wateringbury, Kent, for Hermitage Rainbow 21609, born Jan, 3; *s.* Hermitage Gold 5359, *d.* Rainbow Honesty 19604 *by* Lock Sussex 4534.

1022 II. (£10.)—Captain D. C. L. Speed, Knowlton Court, Canterbury, for Knowlton Belle 21667, born Jan. 14; *s.* Imperator 5100, *d.* Poulton Belle 3rd 19608 *by* St. Albans 33rd 3658.

1016 III. (£5.)—J. Rayner Betts, Greenhill, Otham, Maidstone, for Otham Lumpy 5th 21067, born April 6; *s.* Ticehurst Chevalier 6th 4854, *d.* Ockham Lumpy 7th 17855 *by* Golden Noble 9th 3877.

Welsh.

Class 138.—*Welsh Bulls, born on or before November* 30, 1922.

1026 I. (£15, & Champion.[1])—Lord Harlech, Glyn, Talsarnau, for Penywern Harry 2072, born Sept. 10, 1921, bred by J. Morris, Penywern, Talybont, Cardiganshire; *s.* Nenadd Sam 1430, *d.* Penywern Lill 3520 *by* Falkland King 1026.

1028 II. (£10.)—F. C. Minoprio, Haulfryn Home Farm, Abersoch, for Tre-riffri Botha Bach 2370, born Jan. 7, 1922, bred by H. J. Lewis, Treriffri, Llanerchymedd; *s.* Bodelwa Botha 1267, *d.* Minydon 4th 2073 *by* Billy Bach 4th 584.

1029 III. (£5.)—The Hon. Guy Wilson, C.M.G., D.S.O., Arkengarthdale, Richmond, Yorks, for Pencarth Jack 2056, born Jan. 15, 1921, bred by Owen Williams, Penystumllyn, Criccieth; *s.* Penllyn Jack 1441, *d.* Penllyn Nell 6th 3860 *by* Wern Ordnance 720.

Class 139.—*Welsh Bulls, born on or between December* 1, 1922, *and November* 30, 1923.

1037 I. (£15, & R. N. for Champion.[1])—Col. the Hon. Guy Wilson, C.M.G., D.S.O., Arkengarthdale, Richmond, Yorks, for Arkendale Black Rod, born May 11, 1923; *s.* Wern Ruler 1538, *d.* Arkendale Buttercup 4766 *by* Druid of Penrhyn 1135.

1033 II. (£10.)—J. Crosland Graham, Clwyd Hall, Ruthin, for Penywern Prince, born Feb. 1, 1923, bred by John Morris, Penywern, Talybont; *s.* Hendle Caradog 1683, *d.* Comfat 2nd 1378 *by* Oakley Champion 265.

1031 III. (£5.)—Captain T. S. Christie, Wardrew, Gilsland, Carlisle, for Masterpiece, born April 1, 1923; *s.* Duke of Wardrew 1941, *d.* Huddig 2809 *by* Caertyddyn Wakin 686.

1036 R. N.—A. W. Willmer, Waen, Dolgelly, and Trafford Hall, Chester, for Waen Gordon.

Class 140.—*Welsh Cows or Heifers (in-milk), born on or before November* 30, 1921.

1041 I. (£15, & R. N. for Champion.[2])—Owen Williams, Crossways, Cowbridge, for Garn Dolly 2030, born May 25, 1914, calved March 10, 1924, bred by R. Evans, Cefn Peraidd, Garn; *s.* Wern Lion 562, *d.* Blackan 3rd *by* Wern Defender 45.

Class 141.—*Welsh Heifers, born on or between December* 1, 1921, *and November* 30, 1922.

1054 I. (£15, & Champion.[2])—F. C. Minoprio, Haulfryn Home Farm, Abersoch, for Punt-y-Gwair Shan, born Jan. 12, 1922, bred by J. W. Holland, Punt-y-Gwair, Abersoch; *s.* Punt-y-Gwair Jock 1750, *d.* Punt-y-Gwair Margaret 4123 *by* Escuan Jack Johnson 979.

1048 II. (£10.)—Richard John George, Llwyn, Chwilog, Carnarvonshire, for Hendre Doli 5687, born March 17, 1922, bred by G. G. Davies, Hendri Bach, Clynnog, Llanwnda, Carnarvonshire; *s.* Bomb of Penrhyn 1136, *d.* Hendri Bach Gwladys 2545 *by* Blodyn 695.

1060 III. (£5.)—A. W. Willmer, Waen, Dolgelly, and Trafford Hall, Chester, for Waen Fairy 2nd, born Sept. 6, 1922; *s.* Sion 'or Bryn 1769, *d* Waen Fairy 4757 *by* Herald of Penrhyn 1143.

1056 IV. (£4.)—Sir Edward Naylor Leyland, Bart., Nant Clwyd Hall, Ruthin, for Diamond of Nantclwyd, born Aug. 19, 1922; *s.* Bodelwa Botha 1267, *d.* Marion Diamond 5th 4516 *by* Bachellyn Paxton 1093.

1043 V. (£3.)—Captain T. S. Christie, Wardrew, Gilsland, Carlisle, for Emerald 3rd of Wardrew 5639, born Dec. 8, 1921; *s.* Magician of Penrhyn 1406, *d.* Bessie of Penrhyn 2889 *by* Madryn Cawr 488.

1058 R. N.—A. W. Willmer, for Purren 16th of Vaynol.

H. C.—1045, 1046. C.—1055.

Class 142.—*Welsh Heifers, born on or between December* 1, 1922, *and November* 30, 1923.

1067 I. (£15.)—Lord Harlech, Glyn, Talsarnau, for Glyn Nosegay, born Dec. 8, 1922; *s.* Glyn Boy 1351, *d.* Glyn Killiwake 4116 *by* Madryn Joffre 1147.

1072 II. (£10.)—A. W. Willmer, Waen, Dolgelly, and Trafford Hall, Chester, for Waen Bessie 3rd, born Jan. 4, 1923; *s.* Waen Michael 2149, *d.* Waen Bessie 2nd 3874 *by* Wern Ordnance 720.

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[1] Champion Prize of £5 given by the Welsh Black Cattle Society for the best Bull in Classes 138 and 139.

[2] Champion Prize of £5 given by the Welsh Black Cattle Society for the best Cow or Heifer in Classes 140 to 142.

1070 III. (£5.)—F. C. Minoprio, Haulfryn Home Farm, Abersoch, for **Punt-y-Gwair Ethel**, born Feb. 8, 1923, bred by J. W. Holland, Punt-y-Gwair, Abersoch; *s.* Cim Chamberlain 1908, *d.* Punt-y-Gwair Daffodil 4128 *by* Bachelyn Twrk 1255.

1068 IV. (£4.)—Lord Harlech, for **Glyn Nymph**, born Dec. 7, 1922; *s.* Glyn Jargon 1360, *d.* Glyn Kate 4121 *by* Glyn Boy 1351.

1062 V. (£3.)—Dinam Estates Company, Llandinam, Mont., for **Dinam Angela**, born June 7, 1923; *s.* Dinam Chief 1618, *d.* Amble 3877 *by* Bachellyn Glyndwr 1080.

1065 R. N.—J. Crosland Graham, Clwyd Hall, Ruthin, for **Cim Beauty**.

H. C.—1063. C.—1064.

Aberdeen-Angus.

Class 143.—*Aberdeen-Angus Bulls, born on or before November* 30, 1921.

1079 I. (£15, Champion,[1] Champion,[2] R. N. for Champion,[3] & R. N. for Champion.[4])—William T. Elgey, Corpslanding, Cranswick, East Yorks, for **Geordie of Goodwood 48285**, born Feb. 5, 1920, bred by the Duke of Richmond and Gordon, K.G., Goodwood; *s.* Blackfriar of Bywell 40870, *d.* Rose Mary of Goodwood 59032 *by* Benedict of Wicken 34077.

1077 II. (£10.)—J. J. Cridlan, Maisemore Park, Gloucester, for **Everdear of Maisemore 45859**, born Feb. 18, 1919; *s.* Evercalm 33167, *d.* Evergreen 39th 58018 *by* Black Boy of Maisemore 35554.

1075 III. (£5.)—Sir Leonard Brassey, Bart., M.P., Apethorpe Hall, Peterborough, for **Edward of Rarichie 43304**, born April 16, 1917, bred by John A. Grant, Wester Rarichie, Nigg Station, Ross-shire; *s.* Eupator 30515, *d.* Erica of Finlarig 4th 52469 *by* Eccentric of Ballindalloch 30342.

Class 144.—*Aberdeen-Angus Bulls, born on or between December* 1, 1921, *and November* 30, 1922.

1084 I. (£15, R. N. for Champion,[1] & R. N. for Champion.[2])—Viscount Allendale, Dilston, Corbridge-on-Tyne, for **Electricity of Bywell 52341**, born Jan. 12, 1922; *s.* Exbert 45895 *d.* Eliana 59159 *by* Pride's Reviver 33660.

1083 II. (£10.)—H.R.H. The Prince of Wales, Duke of Cornwall, K.G., Bellever Farm, Princetown, Devon, for **Prince Proudfoot**, born June 4, 1922; *s.* Evinsdale 43331, *d.* Princess 2nd of Dartmoor 55582 *by* Rex of Port Lool 36885.

1085 III. (£5.)—F. Harold Turnbull, Lower House Farm, Llantwit Major, Cardiff, for **Pranksome 53401**, born March 3, 1922, bred by Brig.-General Lord Saltoun, C.M.G., Philorth; *s.* Beswick 47284, *d.* Drimmie's Pride 68122 *by* Beholder of Ballindalloch 42835.

Class 145.—*Aberdeen-Angus Bulls, born on or between December* 1, 1922, *and November* 30, 1923.

1089 I. (£15.)—F. Allingham, Dog Kennel Farm, Lilley, Luton, for **Explorer of Stagenhoe**, born May 1, 1923, bred by A. W. Bailey Hawkins, Stagenhoe Bottom Farm, Welwyn; *s.* Evidence of Ballindalloch 45884, *d.* Ethinison of Advie 58415 *by* Prince Benison of Ballindalloch 36711.

1094 II. (£10.)—Major Norman Kennedy, D.S.O., Doonholm, Ayr, for **Black Prince of Doonholm 54078**, born March 19, 1923, bred by the late James Kennedy, Doonholm, Ayr; *s.* Prince Benson of Ballindalloch 51308, *d.* Belonica 58593 *by* Mondello 27193.

1091 III. (£5.)—Sir Leonard Brassey, Bart., M.P., Apethorpe Hall, Peterborough, for **Black Jester 54062**, born Dec. 10, 1922; *s.* Black Knight of Auchterarder 45102, *d.* Joanna of Apethorpe 66478 *by* Eclipse of Ballindalloch 43266.

1087 IV. (£4.)—Viscount Allendale, Dilston, Corbridge-on-Tyne, for **Gerald of Bywell 54929**, born Dec. 19, 1922; *s.* Placeman of Bywell 48929, *d.* Grace of Auchterarder 53067 *by* Romeo of Ballindalloch 29941.

1098 R. N.—F. Harold Turnbull, Lower House Farm, Llantwit Major, Cardiff, for **Elsinore of Llantwit**.

Class 146.—*Aberdeen-Angus Cows or Heifers (in-milk), born on or before November* 30, 1921.

1101 I. (£15, Champion,[3] & Champion.[4])—J. J. Cridlan, Maisemore Park, Gloucester, for **Eve 3rd of Maisemore 64328**, born May 26, 1919, calved Dec. 23, 1923; *s.* Idyll of Maisemore 36219, *d.* Eve of Maisemore 52161 *by* Brave Briton of Maisemore 30218.

1103 II. (£10.)—Major Norman Kennedy, D.S.O., Doonholm, Ayr, for **Indora of Doonholm 69855**, born March 3, 1921, calved Jan. 1, 1924, bred by the late James Kennedy, Doonholm, Ayr; *s.* Ebelum of Ballindalloch 43249, *d.* Inula 49159 *by* Mondello 27193.

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[1] Perpetual Silver Challenge Trophy, value One Hundred Guineas, given through the Aberdeen-Angus Cattle Society, for the best Bull in Classes 143 to 145.

[2] Champion Gold Medal given by Breeders of English Aberdeen-Angus Cattle for the best animal of the opposite sex to that of the animal awarded the Champion Gold Medal of the Aberdeen-Angus Cattle Society in Classes 143 to 148.

[3] Champion Gold Medal given by the Aberdeen-Angus Cattle Society for the best animal in Classes 143 to 148.

[4] Champion Silver Medal given by the Argentine Aberdeen-Angus Association, for the best animal in Classes 143 to 148.

1105 III. (£5.)—C. W. Sofer-Whitburn, Amport St. Mary's, Andover, for **Erina of Curragh** 62535, born Dec. 24, 1917, calved Dec. 9, 1923, bred by Captain J. R. Greer, Curragh Grange, Kildare; *s.* Peoler of Curragh 40168, *d.* Erna of Curragh 56514 *by* Legion of Curragh 33437.

1100 IV. (£4.)—Sir Leonard Brassey, Bart., M.P., Apethorpe Hall, Peterborough, for **Perfect of Curragh** 67290, born Jan. 18, 1920, calved Dec. 31, 1923, bred by Captain J. R. Greer, Curragh Grange, Kildare; *s.* Legion of Curragh 33437, *d.* Peace of Curragh 54500 *by* Prince Fearless of Ballindalloch 28544.

H. C.—1106.

Class 147.—*Aberdeen-Angus Heifers, born on or between December* 1, 1921, and *November* 30, 1922.

1109 I. (£15.)—Viscount Allendale, Dilston, Corbridge-on-Tyne, for **Principle of Bywell** 70992, born Jan. 2, 1922; *s.* Prince George of Bywell 49019, *d.* Princess of Benton 2nd 57274 *by* Prince of Jesters 32404.

1113 II. (£10.)—J. J. Cridlan, Maisemore Park, Gloucester, for **Jilt 9th of Maisemore** 71428, born Jan. 12, 1922; *s.* George R. of Ballindalloch 30611, *d.* Jilt 8th of Maisemore 66763 *by* Prince of Salem 31112.

1111 III. (£5.)—Sir Leonard Brassey, Bart., M.P., Apethorpe Hall, Peterborough, for **Barakalla** 71181, born March 20, 1922; *s.* El Khabir 47880, *d.* Butterfly of Achnagonaln 64886 *by* Eventus of Ballindalloch 39581.

1114 IV. (£4.)—William T. Elgey, Corpslanding, Cranswick, East Yorks, for **Enchantress of Corpslanding** 71581, born April 3, 1922; *s.* Geordie of Goodward 48285, *d.* Corpslanding Erica 64491 *by* Evinco of Ballindalloch 41555.

1115 R. N.—Major Norman Kennedy, D.S.O., Doonholm, Ayr, for **Elation of Doonholm.**

H. C.—1116.

Class 148.—*Aberdeen-Angus Heifers, born on or between December* 1, 1922, *and November* 30, 1923.

1128 I. (£15.)—Major Norman Kennedy, D.S.O., Doonholm, Ayr, for **Bignonia of Doonholm** 74403, born Jan. 4, 1923, bred by the late James Kennedy, Doonholm, Ayr; *s* Ebelum of Ballindalloch 43249, *d.* Biota of Doonholm 56632 *by* Mondello 27193.

1123 II. (£10.)—J. J. Cridlan, Maisemore Park, Gloucester, for **Pride 25th of Maisemore** 73797, born Dec. 28, 1922; *s.* George R. of Ballindalloch 30611, *d.* Pride 21st of Maisemore 69157 *by* Evergilt of Maisemore 45868.

1124 III. (£5.)—William T. Elgey, Corpslanding, Cranswick, East Yorks, for **Emily of Corpslanding** 73943, born Dec. 1, 1922; *s.* Geordie of Goodwood 48285, *d.* Esme of Corpslanding 66932 *by* Prince Toreador 44465.

1136 IV. (£4.)—F. Harold Turnbull, Lower House Farm, Llantwit Major, Cardiff, for **Erica of Llantwit** 75340, born March 21, 1923; *s.* Watchman of Garvault 51689, *d.* Esta Erica 73309 *by* Eventoir of Ballindalloch 36045.

1132 V. (£3.)—C. W. Sofer-Whitburn, Amport St. Mary's, Andover, for **Black Bell of Amport**, born Dec. 11, 1922; *s.* Jovial Eric 39863, *d.* Black Bell of Dalmeny 57130 *by* Heather Hero of Dalmeny 34618.

1133 R. N.—C. W. Sofer-Whitburn, for **Blackbird of Amport.**

H. C.—1118.

Cup.[1]—J. J. Cridlan.

Dun and Belted Galloways.

Class 151.—*Belted Galloway Bulls, born on or before November* 30, 1923.[2]

1143 I. (£15.)—The Marquis of Bute, K.T., Craigeach, Kirkcowan, for **Mochrum Royal Record** 61 B, born in March, 1919, bred by Robert Graham, Auchengassel, Twynholm; *s.* Mark Champion 55B, *d.* Mark Fanny 211 B *by* Legacy.

1144 II. (£10.)—Miss de Montgeon, Eastington Hall, Upton-on-Severn, for **Eastington Knockbrex Pirate** 30B, born Jan. 27, 1920, bred by Mrs. Brown, Knockbrex, Kirkcudbright; *s.* Knockbrex Viking 50B, *d.* Gartmore Sonsie 146B *by* Boreland Royal Blend 24B.

Class 152.—*Belted Galloway Cows or Heifers (in-milk), born on or before November* 30, 1921.

1147 I. (£15.)—The Marquis of Bute, K.T., Craigeach, Kirkcowan, for **Mochrum Minnie** 236B, born Feb. 18, 1921, calved Nov. 10, 1923; *s.* Mochrum Royal Record 61B, *d.* Mochrum Gip 242B.

1148 II. (£10.)—Miss de Montgeon, Eastington Hall, Upton-on-Severn, for **Eastington Whin** 142B, born in May, 1919, calved Feb. 24, 1924, breeder unknown.

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[1] Silver Challenge Cup, value £25, given through the English Aberdeen-Angus Cattle Association for the most points awarded in a combination of entries in Classes 143 to 148. on the basis of: Four points for a First Prize, three points for a Second Prize, two points for a Third Prize, one point for a Reserve, two points for a Championship, and one point for a Reserve for a Championship.

[2] Prizes given by the Dun and Belted Galloway Cattle Breeders' Association.

Galloways.

Class 153.—*Galloway Bulls, born on or before November* 30, 1923.

1153 I. (£15.)—John Cunningham, Tarbreoch, Dalbeattie, for **Sapphire** 12268, born May 4, 1914, bred by Thomas Biggar and Sons, Chapelton, Dalbeattie; *s.* Pure Gem 11356, *d.* Lizzie 2nd of Chapelton 19464 *by* Lord William 7108.

1157 II. (£10.)—John Scott, Drumhumphry, by Dalbeattie, for **Drumhumphry Perfection** 14900, born June 2, 1921; *s.* Cashier of Tarbreoch 13429, *d.* Ruby of Drumhumphry 21115 *by* Othello of Kilquhanity 8469.

Class 154.—*Galloway Cows or Heifers (in-milk), born on or before November* 30, 1921.

1159 I. (£15.)—John Cunningham, Tarbreoch, Dalbeattie, for **Tarbreoch Blue Bell 3rd** 26883, born May 26, 1919, calved Feb. 16, 1924; *s.* Sapphire 12268, *d.* Tarbreoch Blue Bell 22589 *by* Tarbreoch Chief 10883.

Class 155.—*Galloway Heifers, born on or between December* 1, 1921, *and November* 30, 1922.

1165 I. (£15.)—John Cunningham, Tarbreoch, Dalbeattie, for **May Queen 27th of Tarbreoch** 28457, born Feb. 5, 1922; *s.* Sir Digby 2nd of Craigneston 14155, *d.* May Queen 21st of Tarbreoch 27470 *by* Sapphire 12268.

Class 156.—*Galloway Heifers, born on or between December* 1, 1922, *and November* 30, 1923.[1]

1171 I. (£15.)—John Cunningham, Tarbreoch, Dalbeattie, for **Tarbreoch Blue Bell 6th** 29002, born Jan. 10, 1923; *s.* Sir Digby 2nd of Craigneston 14155, *d.* Tarbreoch Blue Bell 3rd 26883 *by* Sapphire 12268.

1172 II. (£10.)—John Cunningham, for **Tarbreoch Dora 24th** 29001, born Jan. 6, 1923; *s.* Sir Digby 2nd of Craigneston 14155, *d.* Tarbreoch Lena 3rd 26879 *by* Sapphire 12268.

1175 III. (£5.)—John Scott, Drumhumphry, by Dalbeattie, for **Drumhumphry Joy** 29350, born Dec. 3, 1922; *s.* Cashier of Tarbreoch 13429, *d.* Drumhumphry Gertie 6th 28274 *by* Hopewell of Morrington 11933.

Park Cattle.

Class 157.—*Park Polled or Horned Bulls, born in or before* 1923.

1178 I. (£15.)—Major Q. E. Gurney, Bawdeswell Hall, Norfolk, for **Bawdeswell Courtier** 169, born June 16, 1922, bred by Buxton and Birkbeck, Bolwick; *s.* Bawdeswell Elk 111, *d.* Bawdeswell Coronet 180 *by* Kelmarsh Monarch.

1177 II. (£10.)—The Duke of Bedford, K.G., Woburn Abbey, Beds, for **Woburn Perfection 9th**, born March 27, 1923; *s.* Woburn Perfection 2nd 89, *d.* Woburn Buckingham 6th 482 *by* No. 4 Chartley Bull.

1176 III. (£5.)—The Duke of Bedford, K.G., for **Woburn Matthias 2nd**, born April 26 1923; *s.* Faygate Matthias 71, *d.* Woburn Buckingham 11th *by* Woburn Perfection 33.

Dairy Shorthorns.

Class 159.—*Dairy Shorthorn Bulls, born in or before* 1921.

1183 I. (£15, & Champion.[2])—The Earl of Bessborough, Bessborough, Piltown, Co. Kilkenny, for **Bessborough Polonius** 140959, roan, born Nov. 10, 1917; *s.* Bessborough Nestor 135121, *d.* Bessborough Blonde 15th *by* Keir Goldfinder 99249.

1195 II. (£10, & R. N. for Champion.[2])—Lt.-Col. W. M. Pryor, D.S.O., Weston, Stevenage, for **Lannock Hero** 173240, red and little white, born May 2, 1921; *s.* Creme de Menthe 119683, *d.* Betty 24th *by* Cranford Regulator 119677.

1198 III. (£5.)—Robert N. Tory, Anderson, Blandford, for **Kelmscott Conjuror 3rd** 137269, roan, born June 12, 1916, bred by R. W. Hobbs and Sons, Kelmscott, Lechlade; *s.* Kelmscott Acrobat 4th 126217, *d.* Helpmate 15th *by* Kelmscott Tarquin 105853.

1194 IV. (£4.)—T. L. Martin, Ashe Warren House, Overton, Hants, for **Kelmscott Conjuror 28th** 156774, roan, born July 7th, 1919, bred by R. W. Hobbs and Sons, Kelmscott, Lechlade; *s.* Kelmscott Acrobat 4th 126217, *d.* Sybil 18th *by* Royal Proctor 110029.

1192 V. (£3.)—F. S. Francis, Wilkin Throop, Templecombe, Somerset, for **Colescombe Dolphin** 170433, roan, born May 24, 1921, bred by W. G. Millar, Bampton, Oxon; *s.* Knowsley Dolphin 137428, *d.* Combebank Coral *by* Foundation Stone 105524.

1185 R. N.—T. E. Clarke, Challan Hall, Silverdale, Lancs, for **Leek Rosemary's Heir.**

H. C.—1184, 1197.

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[1] Prizes given by the Galloway Cattle Society.

[2] Champion Prize of £10 given by the Dairy Shorthorn Association, for the best Bull in Classes 159 to 163.

Class 160.—*Dairy Shorthorn Bulls, born in* 1922.

1210 I. (£15.)—Fred. T. Fisher, Lee Farm, Pinkneys Green, Maidenhead, for **Kelmscott Imperialist 71st** 182006, light roan, born May 13, bred by R. W. Hobbs and Sons, Kelmscott, Lechlade; *s.* Crême de Menthe 119683, *d.* Primula 121st *by* Royal Hampton 11th 96908.

1207 II. (£10.)—Captain P. D. A. Courtenay, Overmere, Burnham-on-Sea, for **Conjuror 2nd** 179738, roan, born May 23, bred by G. D. Hibberd, Corfe Mullen, Wimborne, Dorset; *s.* Kelmscott Conjuror 3rd 137269, *d.* Damory Barrington Duchess 4th *by* Faithful Knight 95140.

1226 III. (£5.)—The Duke of Westminster, G.C.V.O., D.S.O., Eaton Hall, Chester, for **Eaton Dictator** 180520, roan, born June 4; *s.* Cherry Ben 147869, *d.* Alveley Object 5th *by* Walnut Captain 128710.

1208 IV. (£4.)—Mrs. J. E. Ellis, Wrea Head Farm, Scalby, Scarborough, for **Fairy Count 2nd** 180702, red roan, born Feb. 17, bred by T. J. Tuton, Camerton Hall, Birstwick, Hull; *s.* Brandsby's Royal Prince 154223, *d.* Keyingham Fairy 6th 8612 *by* Grandee 115670.

1220 V. (£3.)—J. Pierpont Morgan, Wall Hall, Aldenham, Watford, for **Aldenham Matchless Joe** 177681, red and little white, born May 30; *s.* Cantab Jocelyn's Armistice 147744, *d.* Newlands Dainty 6th *by* Mayflower Boy 116518.

1200 R. N.—Sir John Anderson, Bart., Harrold Priory, Bedford, for **Champion Duke.**

1226, 1317, 1341 **R. N. for Cup.**[1]—The Duke of Westminster, G.C.V.O., D.S.O., for **Eaton Dictator, Eaton Red Rose 2nd** and **Monkhill Duchess 3rd.**

H. C.—1224. **C.**—1206, 1209, 1214.

Class 161.—*Dairy Shorthorn Bulls, born on or between January* 1 *and March* 31, 1923.

1230 I. (£15.)—Thomas and Stanley Braithwaite, Fieldgrove, Bitton, Glos, for **Fieldgrove Conjuror 8th**, red and little white, born Feb. 3; *s.* Kelmscott Conjuror 36th 164373, *d.* Valentine 25th (Vol. 58, p. 886) *by* Daisy Ingram 105184.

1242 II. (£10.)—J. M. Strickland, Bainesse, Catterick, for **Bainesse Lord Broadhooks 4th**, red and little white, born Feb. 3; *s.* Brandsby's Aristocrat 5th 169449, *d.* Brandsby's Lady Broadhooks 6th (Vol. 65, p. 1130) *by* Welcome Guest 140083.

1237 III. (£5.)—G. W. Isherwood, Edge Fold and Lower House Farms, Entwistle, Bolton, for **Longhills Lord Rufus**, dark red, born Feb. 3, bred by E. A. Smith, Longhills, Lincoln; *s.* Babraham Lord Price 140574, *d.* Longhills Moonstone (Vol. 62, p. 1095) *by* Duke of Darlington 115163.

1232 IV. (£4.)—H. A. Brown, Croft House, Grendon, Atherstone, for **Grendon Watercress**, roan, born Jan. 16; *s.* Grendon Hartebeest 163776, *d.* Grendon Cressida (Vol. 65, p. 632) *by* Lord Nottingham 116317.

1235 V. (£3.)—F. S. Francis, Wilkins Throop, Templecombe, Somerset, for **Anderson Bates 4th**, red, born March 8, bred by R. N. Tory, Anderson, Blandford; *s.* Anderson Priceless Bates 160742, *d.* Solo 101st 4048 *by* Kelmscott Juggler 116052.

1244 R. N.—Major S. P. Yates, Broughton Grange, Banbury, for **Sorbrook Premier.**

1232, 1296, 1344 **Cup.**[1]—H. A. Brown, for **Grendon Watercress, Lady Winsonia 2nd** and **Grendon Cress.**

H. C.—1239.

Class 162.—*Dairy Shorthorn Bulls, born on or between April* 1 *and June* 30, 1923.[2]

1263 I. (£15.)—Alfred Palmer, Wokefield Park, Mortimer, Berks, for **Wokefield Governour**, roan, born May 23; *s.* Wokefield Advocate 160465, *d.* Longhills Greeting (Vol. 60, p. 1072) *by* Babraham Nobleman 101326.

1253 II. (£10.)—A. Ross Fielding, The Leasowes, Hilderstone, Stone, Staffs, for **Hilderstone Victor 2nd**, roan, born April 24; *s.* Carleton Style 147781, *d.* Dalby Vittoria 36166 *by* Czar 130499.

1267 III. (£5.)—J. M. Strickland, Bainesse, Catterick, for **Bainesse Royal Prince 6th**, roan, born May 6; *s.* Brandsby's Aristocrat 5th 169449, *d.* Brandsby's Princess Royal 4th 8099 *by* Champion Premier 141495.

1272 IV. (£4.)—Sir Gilbert A. H. Wills, Bart., Batsford Park, Moreton-in-Marsh, for **Batsford Popcorn**, roan, born May 15; *s.* Thornby Pioneer 133922, *d.* Duchess of Cornhill 15th (Vol. 65, p. 1151) *by* Gainford Recorder 125646.

1261 V. (£3.)—J. Pierpont Morgan, Wall Hall, Aldenham, Watford, for **Aldenham Marvel 2nd**, roan, born April 14; *s.* Cotlands Waterloo Duke 6th 155058, *d.* Lady Mollie (Vol. 65, p. 793) *by* Danger Signal 108337.

1247 R. N.—Denis Aldridge, Sketchley Hall Farm, Hinckley, for **Wild Eyes Count.**

H. C.—1245, 1246, 1257, 1262, 1273. **C.**—1256, 1259, 1264.

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[1] Silver Challenge Cup, value 100 Guineas, given through the Dairy Shorthorn Association, for the best group of one Bull and two Cows or Heifers in Classes 159 to 167. Two at least of the animals must have been bred by the Exhibitor.

[2] Prizes, except Fourth and Fifth, given by the Dairy Shorthorn Association.

Class 163.—*Dairy Shorthorn Bulls, born on or between July* 1 *and December* 31 1923.

1290 I. (£15.)—Sir Gilbert A. H. Wills, Bart., Batsford Park, Moreton-in-Marsh, for **Batsford Manager**, roan, born Oct. 2; *s.* Thornby Prime Minister 167526, *d.* Queen Marion 9414 *by* Gold Flake 142691.

1275 II. (£10.)—Denis Aldridge, Sketchley Hall Farm, Hinckley, for **Right Royal**, born Sept. 2; *s.* Count Rubio 162503, *d.* Watercrook Hylda 2nd 5859 *by* Merry Prince 137985.

1276 III. (£5.)—Denis Aldridge, for **Vain Man**, dark roan, born Sept. 7; *s.* Kelmscott Dreadnought 21st 156806, *d.* Vain Lucy 5th 10875 *by* Benedict's Pride 111013.

1291 IV. (£4.)—Major S. P. Yates, Broughton Grange, Banbury, for **Sorbrook Clarence**, roan, born Sept. 30; *s.* Foggathorpe Premier 163306, *d.* Clara's Beauty (Vol. 65, p. 685) *by* Spency Yet 133719.

1287 V. (£3.)—Robert N. Tory, Anderson, Blandford, for **Anderson Dairyman**, roan, born Oct. 2; *s.* Bainesse Dairyman 2nd 168657, *d.* Ridge Rosedale (Vol. 65, p. 672) *by* Ridge Chief 127710.

1280 R. N.—F. S. Francis, Wilkin Throop, Templecombe, Somerset, for **Throop Nottingham.**

H. C.—1285. C.—1284, 1286.

Class 164.—*Dairy Shorthorn Cows (in-milk), born in or before* 1917.[1]

1296 I. (£15, & Champion.[2])—H. A. Brown, Croft House, Grendon, Atherstone, for **Lady Winsonia 2nd** (Vol. 63, p. 1259), red and little white, born Feb. 12, 1916, calved May 28, 1924, bred by T. W. Workman, The Beeches, Carleton, Carlisle; *s.* Walby Star 128699, *d.* Lady Windsor 29th *by* Bright Minican 104872.

1300 II. (£10.)—A. R. Fish, Holme Mead, Hutton, Preston, for **Combebank Johnby 5877**, red roan, born May 9, 1917, calved June 14, 1924, bred by R. L. Mond, Sevenoaks, Kent; *s.* Foundation Stone 105524, *d.* Johnby Rose 10th *by* Bouncing Boy 94395.

1293 III. (£5.)—Denis Aldridge, Sketchley Hall Farm, Hinckley, for **Daisy Queen** (Vol. 62, p. 961), red and white, born July 10, 1915, calved June 17, 1924, bred by J. Moffat, Spital, Kendal; *s.* Lord Nottingham 116317, *d.* Daisy Belle 12th *by* Grove Minstrel 99036.

1317 IV. (£4.)—The Duke of Westminster, G.C.V.O., D.S.O., Eaton Hall, Chester, for **Eaton Red Rose 2nd** (Vol. 64, p. 1371), roan, born Feb. 19, 1917, calved June 22, 1924; *s.* Leek Conjuror 121142, *d.* Red Rose 6th *by* Wellborn 107459.

1298 V. (£3.)—Lt.-Col. Viscount Feilding, Newnham Paddox, Rugby, for **Watercrook Cowslip** (Vol. 63, p. 1016), white, born Dec. 1, 1916, calved June 5, 1924, bred by J. Moffat, Spital, Kendal; *s.* Proud Prince 127480, *d.* Cowslip 12th *by* Prince Gongora 81909.

1292 R. N.—Denis Aldridge, Sketchley Hall Farm, Hinckley, for **Bridget's Daisy 3rd.**

1292, 1293, 1323 Cup.[3]—Denis Aldridge, for **Bridget's Daisy 3rd, Daisy Queen and Marion's Beauty.**

1317, 1341, 1363 R. N. for Cup.[3]—The Duke of Westminster, G.C.V.O., D.S.O., for **Eaton Red Rose 2nd, Monkhill Duchess 3rd and Caton Jenny Gift.**

H. C.—1299. C.—1297, 1315.

Class 165.—*Dairy Shorthorn Cows (in-milk), born in* 1918 *or* 1919.

1332 I. (£15.)—T. L. Martin, Ashe Warren House, Overton, Hants, for **Comely Maid 4th** 9505, red and little white, born Oct. 8, 1919, calved June 19, 1924, bred by T. W. Workman, The Beeches, Carleton, Carlisle; *s.* Wedgewood 146240, *d.* Comely Maid *by* Moresdale Masterpiece 109460.

1323 II. (£10.)—Denis Aldridge, Sketchley Hall Farm, Hinckley, for **Marion's Beauty** (Vol. 65, p. 972), red and white, born Oct. 18, 1918, calved June 23, 1924, bred by J. Moffat, Spital, Kendal; *s.* Ruler 133385, *d.* Beauty *by* Loyalist 112383.

1341 III. (£5.)—The Duke of Westminster, G.C.V.O., D.S.O., Eaton Hall, Chester, for **Monkhill Duchess 3rd** 7107, roan, born Jan. 14, 1919, calved June 15, 1924, bred by John Rickerby, Monkhill, Burgh-by-Sands, Carlisle; *s.* Carleton Dairy King 141439, *d.* Duchess of Armathwaite 14th *by* Lancaster 109107.

1336 IV. (£4.)—Lt.-Col. R. and Mrs. M. Mostyn-Owen, Woodhouse, Oswestry, for **Rosette Prim 4th** 8217, red and little white, born Feb. 17, 1919, calved May 26, 1924, bred by W. Taylor, Syke Side, Soulby, Kirkby Stephen; *s.* Royal Stockman 145183, *d.* Rosette Prim *by* Marmion Robin 112446.

1329 V. (£3.)—T. E. Clarke, Challan Hall, Silverdale, Lancs, for **Plaspower Rosebud** (Vol. 65, p. 770), roan, born Aug. 16, 1918, calved May 25, 1924, bred by Mrs. FitzHugh, Plas Power, Wrexham; *s.* White Heather 140132, *d.* Plaspower Rose *by* Admiral 118457.

1335 R. N.—Lt.-Col. R. and Mrs. M. Mostyn-Owen, for **Apley Proud Kirklevington.**

H. C.—1337, 1340.

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[1] Prizes, except Fourth and Fifth, given by the Shorthorn Society.

[2] Champion Prize of £10 given by the Shorthorn Society, for the best Cow or Heifer in Classes 164 to 167. A Silver Medal is given by the Shorthorn Society to the Breeder of the Champion Dairy Shorthorn Cow.

[3] Silver Challenge Cup, value Fifty Guineas, given through the Dairy Shorthorn Association, for the best group of three Cows or Heifers in Classes 164 to 167.

Class 166.—*Dairy Shorthorn Cows (in-milk), born in* 1920.

1367 I. (£15, & R. N. for Champion.[1])—Major S. P. Yates, Broughton Grange, Banbury, for **Sorbrook Foggathorpe** 20122, red and little white, born May 15, calved May 21, 1924; *s.* Preshute Barrington 144502, *d.* Loobagh Foggathorpe 5th *by* Loobagh Duke 126555.

1357 II. (£10.)—J. Pierpont Morgan, Wall Hall, Aldenham, Watford, for **Longhills Belle 2nd** 18128, red and little white, born Jan. 13, calved June 7, 1924, bred by E. A. Smith, Longhills, Lincoln; *s.* Oxford Bridegroom 121914, *d.* Longhills Belle *by* Duke of Darlington 115163.

1363 III. (£5.)—The Duke of Westminster, G.C.V.O., D.S.O., Eaton Hall, Chester, for **Eaton Jenny Gift** 19456, roan, born April 10, calved June 14, 1924; *s.* Carleton Style 147781, *d.* Favourite Jenny Gift *by* Diamond Gift 125181.

1344 IV. (£4.)—H. A. Brown, Croft House, Grendon, Atherstone, for **Grendon Cress** 10738, roan, born May 4, 1920, calved May 24, 1924; *s.* Lord Nottingham 116317, *d.* Cressida 42nd *by* Dairy Ingram 105184.

1360 V. (£3.)—J. G. Peel, Peover Hall, Over Peover, Knutsford, for **Backwood Seraphina** 19514, red and little white, born June 5, calved June 8, 1924, bred by W. E. Whineray, Leighton Court, Neston; *s.* Preshute Herald 151132, *d.* Leazow Seraphina 3rd *by* Mainspring 109310.

1352 R. N.—G. P. Golden, Eaglesfield, Leire, Rugby, for **Lady Doreen 4th.**

C.—1345, 1361, 1362.

Class 167.—*Dairy Shorthorn Heifers (in-milk), born in* 1921.

1377 I. (£15.)—G. P. Golden, Eaglesfield, Leire, Rugby, for **Lady Doreen 6th** 24332, red and little white, born Feb. 18, calved May 22, 1924; *s.* Lord Leicester 2nd 157373, *d.* Dorcas *by* Conjuror 91310.

1383 II. (£10.)—T. L. Martin, Ashe Warren House, Overton, Hants, for **Duchess of Bozeat 12th** 21420, roan, born Jan. 20, calved May 6, 1924, bred by John Britten, Bozeat Manor, Wellingborough; *s.* Loobagh Beau 3rd 143635, *d.* Grand Duchess *by* Double Barrington 115091.

1373 III. (£5.)—A. R. Fish, Holme Mead, Hutton, Preston, for **Haining Waterloo 2nd** 23990, roan, born Aug. 24, calved May 23, 1924, bred by I. H. and T. Forster, West View, Allandale; *s.* Haining Prince 156282, *d.* Haining Waterloo *by* Moppy's Champion 144066.

1375 IV. (£4.)—Mrs. Fitz Hugh, Plas Power, Wrexham, for **Plaspower Darlington** 23883, white, born Sept. 22, calved May 10, 1924; *s.* Colescombe King John 154899, *s.* Heathenden Darlington *by* Preshute Waterloo 138520.

1387 V. (£3.)—Lt.-Col. R. and Mrs. M. Mostyn-Owen, Woodhouse, Oswestry, for **Olive Leaf 45th** 31825, roan, born March 31, calved May 12, 1924, bred by C. C. L. Williams, Llanrumney Hall, Cardiff; *s.* Prince Pailful 151204, *d.* Olive Leaf 39th *by* Llanrumney Wild King 121202.

1386 R. N.—J. Pierpont Morgan, Wall Hall, Aldenham, Watford, for **Rockley Barrington Joan.**

Non-Pedigree Dairy Shorthorns.

Class 168.—*Non-Pedigree Dairy Shorthorn Cows (in-milk), born in or before* 1918.

1406 I. (£15.)—J. L. Shirley, Silverton, Woughton, Bletchley, for **Maisie 2nd**, roan, age and breeder unknown, calved May 23, 1924.

1403 II. (£10.)—H. A. Brown, Croft House, Grendon, Atherstone, for **Isabelle**, roan, born Feb. 18, 1918, calved April 7, 1924; *s.* Barrington Snowstorm 2nd 124184, *d. by* Festive Prince.

1399 III. (£5.)—Misses M. and E. Balfour, New Bells, Haughley, Suffolk, for **Poppy**, dark red, born in 1917, calved Feb. 23, 1924, breeder unknown.

1404 IV. (£4.)—Thomas Hatton, Anstey Pastures, Leicester, for **Polly**, roan, age unknown, calved Nov. 14, 1923, bred by G. A. Protheroe, Repton, Derby.

Class 169.—*Non-Pedigree Dairy Shorthorn Cows or Heifers (in-milk), born in or after* 1919.[2]

1409 I. (£15.)—J. Pierpont Morgan, Wall Hall, Aldenham, Watford, for **Empress 8th** 1614, roan, born March 10, 1919, calved June 4, 1924, bred by J. Almond, Buckley Hill Farm, Sefton, Liverpool; *s.* Hawkrigg Prince 136882, *d.* Empress 149.

Lincolnshire Red Shorthorns.

Class 170.—*Lincolnshire Red Shorthorn Bulls, born in or before* 1921.

1412 I. (£15, & Champion.[3])—Robert Moss, Hallgates, Cropston, Leicester, for **Soignee Fashion** 14879, born Dec. 22, 1918, bred by Alfred Lewis, Westacre, Norfolk; *s.* Elkington Hercules 3rd 13432, *d.* Soignee No. 30.

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[1] Champion Prize of £10 given by the Shorthorn Society, for the best Cow or Heifer in Classes 164 to 167. A Silver Medal is given by the Shorthorn Society to the Breeder of the Champion Dairy Shorthorn Cow.

[2] Prizes given by the Dairy Shorthorn Association.

[3] Champion Silver Cup, value £10, given by the Lincolnshire Red Shorthorn Association for the best Bull.

1410 **II. (£10, & R. N. for Champion.[1])**—ROWLAND F. AUBREY, Weybridge, Ellington, Hunts, for **Kirmington Weybridge** 18674, born March 22, 1921, bred by George Marris, Kirmington, Ulceby; *s.* Hallington Ascent 15487, *d.* Pendley Yarborough Ruby 2nd *by* Saltfleet Marshman 4958.

1411 **III. (£5.)**—ALFRED LEWIS, Soignée, Westacre, King's Lynn, for **Strubby Croxton 6th** 18050, born July 20, 1920, bred by J. W. Farrow & Sons, Strubby Manor, Alford; *s.* Strubby Croxton Ruby 33rd 14933, *d.* Lady Cardiff 9th *by* Strubby Nonpareil Bonus 8552.

Class 171.—*Lincolnshire Red Shorthorn Bulls, born in* 1922.

1416 **I. (£15.)**—HIS MAJESTY THE KING, Sandringham, Norfolk, for **Wolferton Majestic** 19057, born May 16, bred by T. H. B. Freshney, Worlaby, Brigg; *s.* Scampton Quality 11912, *d.* Scampton May *by* Anderby Pilot 5793.

Class 172.—*Lincolnshire Red Shorthorn Bulls, born in* 1923.

1420 **I. (£15.)**—J. T. COX, Foston Hall, Leicester, for **Foston Dictator**, born April 10, bred by W. and J. Brown, Hagnaby House, Alford; *s.* King Majestic 15572, *d.* Hagnaby Violet No. 4 *by* Thimbleby Marshman 12th 12060.

1419 **II. (£10.)**—H. G. CLARKE, Forest View, Hinckley, for **Forest Lord** 18497, born May 15; *s.* Sturton Atlas 17007, *d.* Wykin Diamond *by* Wykin Polar Star 15080.

Class 173.—*Lincolnshire Red Shorthorn Cows or Heifers (in-milk), born in or before* 1921.

1426 **I. (£15.)**—H. G. CLARKE, Forest View, Hinckley, for **Illston Rosebud** (Vol. 29, p. 317), born Aug. 19, 1919, calved Nov. 4, 1923, bred by T. Dyer & Son, Illston, Billesdon, Leicester; *s.* Elkington Guardian 20th 14454, *d.* *by* St. Leger's Premier 17928.

Class 174.—*Lincolnshire Red Shorthorn Cows or Heifers (in-milk), born in or before* 1921, *showing the best milking properties.*[2]

1434 **I. (£15, & Champion.[3])**—STANLEY BLUNDELL, Bendish House, Welwyn, Herts, for **Bendish Ada 5th** (Vol. 24, p. 316), born Dec. 7, 1917, calved June 7, 1924; *s.* King of the Burtons 10020, *d.* Bendish Ada 2nd *by* Bracebridge Prince 2nd 7364.

1436 **II. (£10, & R. N. for Champion.[3])**—J. O. BURCHNALL, The Manor House, Aston Flamville, Hinckley, for **Flamville Dairymaid 127th** (Vol. 26, p. 315), born Feb. 28, 1917, calved May 23, 1924; *s.* Worlaby 68th 10402, *d.* *by* Norton Ruby 6232.

1447 **III. (£5.)**—LT.-COL. SIR ARCHIBALD WEIGALL, K.C.M.G., Petwood, Woodhall Spa, for **Langford Polly 5th** (Vol. 21, p. 336), born in Sept., 1914, calved April 20, 1924, bred by W. Reading & Sons, Rectory Farm, Langford, Lechdale; *s.* Burton Gay Boy 3842, *d.* Langford Polly 3rd *by* Burton Langford 7404.

1438 **IV. (£4.)**—J. T. COX, Foston Hall, Leicester, for **Foston No. 18**, born in March, 1917, calved May 5, 1924; *s.* Eastover Challenger (108520), *d.* *by* Wiston Blood Red 8685.

1448 **V. (£3.)**—LT.-COL. SIR ARCHIBALD WEIGALL, K.C.M.G., for **Sibsey Rose** (Vol. 28, p. 484), born Sept. 4, 1913, calved June 7, 1924, bred by A. H. Newton, Sibsey, Boston, Lincolnshire; *s.* Croft Somerby Gem 7486, *d.* *by* Thornton Harry 5695.

1435 **R. N.**—STANLEY BLUNDELL, for **Bendish Charm 4th.**

Class 175.—*Lincolnshire Red Shorthorn Heifers, born in* 1922.

1449 **I. (£15, & Champion.[4])**—HIS MAJESTY THE KING, Sandringham, Norfolk, for **Wolferton Beauty** (Vol. 29, p. 238), born Jan. 30; *s.* Scampton Quality 11912, *d.* Thurlaston Beauty *by* Pendley Result 13748.

1459 **II. (£10.)**—LT.-COL. SIR ARCHIBALD WEIGALL, K.C.M.G., Petwood, Woodhall Spa, for **Petwood Jessica 3rd** (Vol. 29, p. 526), born Sept. 8; *s.* Kirmington Quality 3rd 16609, *d.* Petwood Jessica 2nd *by* Stixwould Prince 12936.

1455 **III. (£5.)**—MISSES E. M. and S. M. GRANTHAM, The Rookery, West Keal, Spilsby, for **Keal Pearl** (Vol. 29, p. 380), born May 9; *s.* Pendley Harold 14757, *d.* Keal Favourite 13th *by* Keal Rollo 6925.

1450 **IV. (£4.)**—J. BOURNE, Bonby Manor, Brigg, for **Bonby Carr Rosie 13th** (Vol. 29, p. 281), born Feb. 25; *s.* Lincoln Duke 15620, *d.* *by* Croxton Ruby 25th 8931.

1456 **R. N.**—ALFRED LEWIS, Soignée, Westacre, King's Lynn, for **Soignee No. 207.**

Class 176.—*Lincolnshire Red Shorthorn Heifers, born in* 1923.

1466 **I. (£15, & R. N. for Champion.[4])**—C. DE PARAVICINI, Birkholme Manor, Corby, Grantham, for **Beacon Hill Fatima**, born Jan. 7; *s.* Beacon Hill Dago 16082, *d.* Beacon Hill Fanny (Vol. 27, p. 648) *by* Bloxholme Jumbo 10493.

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[1] Champion Silver Cup, value £10, given by the Lincolnshire Red Shorthorn Association for the best Bull.

[2] Prizes, except Fourth and Fifth, given by the Lincolnshire Red Shorthorn Association.

[3] Champion Silver Cup, value £10, given by the Lincolnshire Red Shorthorn Association for the best Female of the Dairy type.

[4] Champion Silver Cup, value £10, given by the Lincolnshire Red Shorthorn Association for the best Female other than Dairy type.

1461 II. (£10.)—Rowland F. Aubrey, Weybridge, Ellington, Hunts, for **Petwood Rosebud**, born March 26, bred by Lt.-Col. Sir A. Weigall, Petwood, Woodhall Spa; *s.* Retford Dairyman 16814, *d.* Risby Rose 8th (Vol. 25, p. 296) *by* Bonby Emperor 6598.

1465 III. (£5.)—Charles Bembridge, Walcott, Lincoln, for **Anwick No. 19**, born June 7; *s.* Scampton Vici 16896, *d.* Benniworth Anwick (Vol. 23, p. 282) *by* Keddington Comet 3443.

1460 IV. (£4.)—His Majesty the King, Sandringham, Norfolk, for **Wolferton Treasure 2nd**, born March 23; *s.* Wolferton Prince 15059, *d.* Pendley Treasure (Vol. 24, p. 452) *by* Croxton Ruby 33rd 8939.

1464 V. (£3.)—Charles Bembridge, for **Anwick No. 18**, born June 4; *s.* Scampton Vici 16896, *d.* Anwick Rosebud (Vol. 26, p. 283) *by* Beacon Hill Tommy 13190.

1467 R. N.—T. Dyer & Son, Ilston, Billesdon, Leicestershire, for **Hagnaby Marigold.**

Devons.

Class 177.—*Devon Bulls, born in or before* 1922.

1475 I. (£15, & R. N. for Champion.[1])—Charles Morris, Highfield Hall, St. Albans, and Bishop's Lydeard, for **Highfield Nobleman 11912**, born Jan. 26, 1922; *s.* Highfield Gem 2nd 9329, *d.* Northmoor Gipsy 2nd 32455 *by* Gotton Prince 2nd 8070.

Class 178.—*Devon Bulls, born in* 1923.

1477 I. (£15, & Champion.[1])—Charles Morris, Highfield Hall, St. Albans and Bishop's Lydeard, for **Highfield Ringleader**, born Jan. 23; *s.* Highfield Gem 2nd 9329, *d.* Northmoor Cherry 31554 *by* Gotton Prince 2nd 8070.

Class 179.—*Devon Cows or Heifers (in-milk), born in or before* 1921.

1479 I. (£15.)—Charles Morris, Highfield Hall, St. Albans and Bishop's Lydeard, for **Highfield Lottie 3rd 33158**, born Feb. 18, 1920, calved Jan. 18, 1924; *s.* Highfield Gauge 9689, *d.* Highfield Lottie 27769 *by* Longforth Mailbag 7439.

1480 II. (£10.)—Charles Morris, for **Highfield Yendell Beauty 33173**, born June 14, 1920, calved March 3, 1924; *s.* Highfield Gem 2nd 9329, *d.* Beauty 5th 28861 *by* Cutsey Gordon 8004.

Class 181.—*Devon Heifers, born in* 1922.

1484 I. (£15, & Champion.[2])—Charles Morris, Highfield Hall and Bishop's Lydeard, for **Highfield Cherry 2nd 35224**, born Jan. 30; *s.* Highfield Gem 2nd 9329, *d.* Northmoor Cherry 31554 *by* Gotton Prince 2nd 8070.

Class 182.—*Devon Heifers, born in* 1923.

1487 I. (£15, & R. N. for Champion.[2])—E. G. Triggol, Wood Farm, Tiddington, Bridgwater, for **Tiddington Plum**, born April 24; *s.* All Right 10832, *d.* Brunty 24050 *by* Don Juan 4965.

1486 II. (£10.)—Charles Morris, Highfield Hall, St. Albans, and Bishop's Lydeard, for **Highfield Fable 9th 36161**, born Jan. 1; *s.* Highfield Reminder 3rd 11069, *d.* Highfield Fable 2nd 29394 *by* Highfield General 8105.

South Devons.

Class 183.—*South Devon Bulls, born in or before* 1922.

1489 I. (£15.)—Captain J. T. Coryton, Pentillie Castle, St. Mellion, Cornwall, for **Mothecombe Milkman 7245**, born Jan. 29, 1917, bred by J. M. Wroth, Combe, Holbeton, Plymouth; *s.* Brownstone Laddie 4774, *d.* Kitty 11346 *by* Merafield Paymaster 3491.

Longhorns.

Class 188.—*Longhorn Bulls, born in or before* 1923.

1502 I. (£15.)—W. E. Swinnerton, Manor House, Over Whitacre, Birmingham, for **Stivichall Conquest**, red and white, born March 14, 1923; *s.* Whitacre Conqueror 844, *d.* Stivichall Gladeyes (Vol. 10, p. 24) *by* Eastwell Eveno 664.

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[1] Champion Prize of £10 10*s.* given by the Devon Cattle Breeders' Society for the best Bull in Classes 177 and 178, entered or eligible for entry in the Devon Herd Book.

[2] Champion Prize of £10 10*s.* given by the Devon Cattle Breeders' Society for the best Cow or Heifer in Classes 179 to 182, entered or eligible for entry in the Devon Herd Book.

Class 189.—*Longhorn Cows or Heifers (in-milk), born in or before* 1921.

1504 I. (£15.)—J. W. Swinnerton-Weston, Over Whitacre House, Birmingham, for **Cupid** (Vol. 11, p. 16), red, brindle and white, born Feb. 17, 1917, calved Dec. 23, 1923, bred by F. J. Mayo, Friar Waddon, Dorchester; *s.* Eastwell Elector 656, *d.* Carnation *by* Lord Waddon 596.

Class 190.—*Longhorn Heifers, born in* 1922 *or* 1923.[1]

1505 I. (£15.)—J. W. Swinnerton-Weston, Over Whitacre House, Birmingham, for **Whitacre Nellie 6th**, red and white, born April 7, 1922; *s.* Waddon Doctor 839, *d.* Whitacre Nellie (Vol. 10, p. 30) *by* Whitacre Perfection 718.

Red Polls.

Class 191.—*Red Poll Bulls, born in or before* 1921.

1508 I. (£15, & Champion.[2])—Sir Albert E. Bowen, Bart., Culworth, Sharnbrook, Beds, for **Hatton Fabulist 11985**, born Jan. 14, 1920, bred by J. P. Arkwright, Hatton, Warwick; *s.* Sudbourne Major 11076, *d.* Hatton Fable 24035 *by* Acton Hussar 9881.

1509 II. (£10.)—Colonel Charles Brook, Kinmount, Annan, N.B., for **Colworth Speculation 11110**, born Dec. 6, 1916, bred by Sir A. E. Bowen, Bart., Culworth, Sharnbrook; *s.* Colworth Prince Charming 10718, *d.* Lowther Chrysofrase 23090 *by* Letton Vanity Davyson 2nd 10050.

1510 III. (£5.)—Lt.-Col. Sir Merrik R. Burrell, Bart., C.B.E., Knepp Castle, Horsham, for **Knepp Crown 11162**, born July 20, 1916; *s.* Sudbourne Crown 10803, *d.* Plumstead Prudence 24212 *by* Battle Axe 10142.

1506 R. N.—His Majesty the King, Sandringham, Norfolk, for **Royal Crimson.**

Class 192.—*Red Poll Bulls, born in* 1922.

1517 I. (£15, & R. N. for Champion.[2])—Eric C. Lindsay, Annvale House, Keady, Co. Armagh, for **Landwade Challenger 12709**, born Jan. 30; *s.* Marham Florin 11732, *d.* Framlingham Chance 27678 *by* Sudbourne Crossbow 10928.

1518 II. (£10.)—Major G. C. Nevile, Horstead Hall, Norwich, for **Horstead Commodore 12269**, born May 2; *s.* Horsted Artaxerxes 11693, *d.* Shotford Lady Mary 25872 *by* Shotford Alert 10488.

1520 III. (£5.)—Lord Wavertree, Horsley Hall, Gresford, North Wales, for **Ashmoor Jocund 12499**, born Jan. 23, bred by A. Carlyle Smith, Sutton Hall, Woodbridge; *s.* Ashmoor Pearson 11525, *d.* Ashmoor Joan 23386 *by* Dax 9567.

1514 R. N.—Sir Albert E. Bowen, Bart., Culworth, Sharnbrook, for **Culworth Brutus.**

Class 193.—*Red Poll Bulls, born in* 1923.

1528 I. (£15.)—A. Carlyle Smith, Sutton Hall, Woodbridge, for **Ashmoor Flavius**, born Jan. 29; *s.* Davyson 363rd 11926, *d.* Ashmoor Float 26021 *by* Davyson 265th 9230.

1527 II. (£10.)—Felix W. Leach, Meddler Stud, Kennett, Newmarket, for **Meddler Herdsman**, born Feb. 26; *s.* Basildon Roadman 11559, *d.* Meddler Mayflower 27135 *by* Hatchfield Royal Prince 10730.

1529 III. (£5.)—A. Carlyle Smith, for **Ashmoor Parvenu**, born Jan. 21; *s.* Davyson 363rd 11926, *d.* Ashmoor Peerless 22422 *by* Davyson 265th 9230.

1525 IV. (£4.)—Thomas Brown & Son, Marham Hall, King's Lynn, for **Marham Patrician**, born Jan. 21; *s.* Ghurka 10995, *d.* Shardeloes Pauline P. 1 26471 *by* David 10974.

1522 R. N.—Lt.-Col. R. C. Batt, C.B.E., M.V.O., Gresham Hall, Norwich, for **Gresham Mainstay.**

Class 194.—*Red Poll Cows or Heifers (in-milk), born in or before* 1921.

1534 I. (£15, & Champion.[3])—H. Munro Cautley, Neutral Farm, Butley," Tunstall, for **Royal Mavis 30347**, born Jan. 26, 1921, calved Jan. 26, 1924, bred by His Majesty the King, Sandringham; *s.* Royal Sunshine 11452, *d.* Lady Merle 25745 *by* Honingham Alcester 10424.

1546 II. (£10, & R. N. for Champion.[3])—David Trembath, Trelawne, Lancaster Gardens, Clacton-on-Sea, for **Tendring Floss 29th 27326**, born Oct. 1, 1916, calved March 30, 1924, bred by Sir J. T. Rowley, Holbecks Park, Hadleigh, Suffolk; *s.* Rendlesham Hector 10653, *d.* Tendring Floss 10th 22558 *by* Combatant 9550.

1545 III. (£5.)—S. Scrimgeour, Wissett Hall, Halesworth, for **Sotterley Winsome 28233**, born Jan. 19, 1917, calved April 30, 1924, bred by the late Major Miles Barne, Sotterley Park, Wrentham; *s.* Marham Hermit 10622, *d.* Sotterley Winnie 21975 *by* Sotterley Ruby 9744.

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[1] Prizes given by the Longhorn Cattle Society.

[2] Champion Prize of £5 given by the Red Poll Cattle Society for the best Bull in Classes 191 to 193.

[3] Champion Prize of £5 given by the Red Poll Cattle Society for the best Cow or Heifer in Classes 194 to 196.

1535 IV. (£4.)—S. W. Copley, Deacon's Hill, Elstree, Herts, for **Shotford Star Duchess 140 29621**, born Jan. 19, 1920, calved June 13, 1924, bred by J. B. Dimmock, Shotford Hall, Harleston; *s.* Shotford Davyson 11462, *d.* Star Duchess 26th 22812 *by* Shotford Nelson 9742.

1532 V. (£3.)—Sir Albert E. Bowen, Bart., Culworth, Sharnbrook, Beds, for **Sudbourne Belge 26532**, born Dec. 1, 1917, calved Jan. 3, 1924, bred by the late Kenneth Clark, Sudbourne, Orford; *s.* Hermits Ruby 10873, *d.* Sudbourne Belgravia 24358 *by* Acton Crowfoot 9987.

1533 R. N.—Thomas Brown & Son, Marham Hall, King's Lynn, for **Marham Jewel B 6.**

Class 195.—*Red Poll Heifers, born in* 1922.

1556 I. (£15.)—F. B. Ryder, Langham Hall, Blakeney, Norfolk, for **Blakeney Molly 30757**, born Aug. 20; *s.* Sudbourne Credo 11489, *d.* Ickworth Molly 27882 *by* Sudbourne Commander 10922.

1550 II. (£10.) Thomas Brown & Son, Marham Hall, King's Lynn, for **Marham Pasture 31441**, born Jan. 20; *s.* Marham Panther 11412, *d.* Shardeloes Pauline P 1 26471 *by* David 10974.

1557 III. (£5.)—A. Carlyle Smith, Sutton Hall, Woodbridge, for **White Hill Berry 31874**, born March 14, bred by Mrs. R. M. Foot, White Hill, Berkhamsted; *s.* Sudbourne Hector 11224, *d.* Sudbourne Red Berry 25979 *by* Honington Aldeburgh 3rd 10585.

1549 IV. (£4.)—P. A. Bayman, Letheringham Abbey, Wickham Market, for **Marham Amazon 31438**, born Jan. 19, bred by Thomas Brown & Son, Marham Hall, King's Lynn; *s.* Marham Dauntless 11031, *d.* Marham Amber 27125 *by* Kerrison Surprise 10880.

1554 R. N.—Mrs. R. M. Foot, White Hill, Berkhamsted, for **White Hill Dahlia.**

Class 196.—*Red Poll Heifers, born in* 1923.

1565 I. (£15.)—P. A. Bayman, Letheringham Abbey, Wickham Market, for **Falstaff Stella**, born Feb. 23, bred by the Ipswich Industrial Co-operative Society, Ltd., Ipswich; *s.* Aspall Osborne 11539, *d.* Henham Stella 25680 *by* Redgrave Royal 10350.

1579 II. (£10.)—A. Carlyle Smith, Sutton Hall, Woodbridge, for **Ashmoor Berry**, born Jan. 1; *s.* Aspall Eros 6th 11875, *d.* Ashmoor Bertha 28448 *by* Ashmoor Pearson 11525.

1561 III. (£5.)—J. P. Arkwright, Hatton House, Warwick, for **Hay Fay**, born March 11; *s.* Ashmoor Sir Richard 11872, *d.* Hatton Fable 24035 *by* Acton Hussar 9881.

1558 IV. (£4.)—His Majesty the King, Sandringham, Norfolk, for **Royal Hazel**, born Feb. 20; *s.* Easton Autocrat 11624, *d.* Honest Hebe 24635 *by* Sedgemere Rufus 10227.

1562 V. (£3.)—E. Barraclough, Ramsey Tyrrel, Ingatestone, for **Ramsey Lass**, born April 7; *s.* Sudbourne Albion 11064, *d.* Charming Lass 24484 *by* Red David 10069.

1576 R. N.—Ministry of Agriculture Estate, Methwold, Norfolk, for **Methwold Dearie.**

Blue Albions.

Class 197.—*Blue Albion Bulls, born in or before* 1921.

1585 I. (£15.)—Captain A. V. Milton, Grasmere, Birstwith, Harrogate, for **Bradbourne Goalkeeper 2nd**, born Nov. 28, 1921, bred by A. Trafford, Bradbourne, Ashbourne; *s.* Bradbourne Goalkeeper 1st 31, *d.* Bradbourne Elizabeth 168.

1581 II. (£10.)—George W. Axe, Pool Field, Loxley, Uttoxeter, for **Bank Champion**, born July 28, 1921; *s.* Bank Baron 1, *d.* Bank Marion 68.

1586 III. (£5.)—G. B. Morten, Brown Hill Farm, Buxton, for **Bradbourne Goalkeeper 31**, bred by A. Trafford, Bradbourne, Ashbourne.

1584 R. N.—A. T. Greenslade, Little Walden Park, Saffron Walden, for **Destiny.**

Class 198.—*Blue Albion Bulls, born in* 1922.[1]

1591 I. (£15.)—Percy Dobson, Ridgwardine, Market Drayton, for **Elton Monarch**, born Aug. 24, bred by J. Dakin, Elton, Matlock; *s.* Bank Baron 1, *d.* Elton Lilac 3.

1594 II. (£10.)—W. H. Holdcroft, Holly Grove, Norton-in-Hales, Market Drayton, for **Bearstone Topper 209**, born Oct. 26, bred by the late D. Eardley, Bearstone, Market Drayton; *s.* Mountain Wildman 85, *d.* Bearstone Rachael 2028.

1595 III. (£5.)—G. B. Morten, Brown Hill Farm, Buxton, for **Fernilee Fearless**, born April 28; *s.* Bradbourne Goalkeeper 31, *d.* Bradbourne Princess 982.

1590 IV. (£4.)—C. H. Capon, Waterend House, Wheathampstead, Herts, for **Waterend Firstoval**, born Sept. 14; *s.* Bradbourne Goalkeeper, *d.* Bradbourne Mollie.

1589 R. N.—George W. Axe, Pool Field, Loxley, Uttoxeter, for **Bramshall Quality.**

Class 199.—*Blue Albion Bulls, born in* 1923.[1]

1604 I. (£15.)—Lt.-Col. W. E. Harrison, O.B.E., Wychnor Park, Burton-on-Trent, for **Barton Greatheart**, born Jan. 31; *s.* Bradbourne Monarch, *d.* Bradbourne Sweetheart.

1600 II. (£10.)—C. H. Capon, Waterend House, Wheathampstead, Herts, for **Waterend Champion**, born Feb. 10; *s.* Hurdlow Champion 61, *d.* Hurdlow Primrose.

1601 III. (£5.)—Arnold Gillett, Ridgewood, Chorley, Lancs., for **Ridgewood Blue Bank**, born Aug. 31; *s.* England's Glory, *d.* Ridgewood Bank.

1602 IV. (£4.)—W. E. Glover, Snarestone, Burton-on-Trent, for **Snarestone Count**, born May 18; *s.* Mountain Count, *d.* Snarestone Duchess.

1610 V. (£3.)—Randolph Tory, Charisworth Manor, Blandford, for **Charisworth Searchlight**, born Feb. 24; *s.* Bank Romeo 19, *d.* Charisworth Crimple 1114.

1603 R. N.—A. T. Greenslade, Little Walden Park, Saffron Walden, for **Walden Destiny.**

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[1] Prizes, except Fourth and Fifth, given by the Blue Albion Cattle Society.

1070 III. (£5.)—F. C. Minoprio, Haulfryn Home Farm, Abersoch, for **Punt-y-Gwair Ethel**, born Feb. 8, 1923, bred by J. W. Holland, Punt-y-Gwair, Abersoch; *s.* Cim Chamberlain 1908, *d.* Punt-y-Gwair Daffodil 4128 *by* Bachelyn Twrk 1255.
1068 IV. (£4.)—Lord Harlech, for **Glyn Nymph**, born Dec. 7, 1922; *s.* Glyn Jargon 1360, *d.* Glyn Kate 4121 *by* Glyn Boy 1351.
1062 V. (£3.)—Dinam Estates Company, Llandinam, Mont., for **Dinam Angela**, born June 7, 1923; *s.* Dinam Chief 1618, *d.* Amble 3877 *by* Bachellyn Glyndwr 1080.
1065 R. N.—J. Crosland Graham, Clwyd Hall, Ruthin, for **Cim Beauty**.
H. C.—1063. C.—1064.

Aberdeen-Angus.

Class 143.—*Aberdeen-Angus Bulls, born on or before November* 30, 1921.

1079 I. (£15, Champion,[1] Champion,[2] R. N. for Champion,[3] & R. N. for Champion.[4])—William T. Elgey, Corpslanding, Cranswick, East Yorks, for **Geordie of Goodwood 48285**, born Feb. 5, 1920, bred by the Duke of Richmond and Gordon, K.G., Goodwood; *s.* Blackfriar of Bywell 40870, *d.* Rose Mary of Goodwood 59032 *by* Benedict of Wicken 34077.
1077 II. (£10.)—J. J. Cridlan, Maisemore Park, Gloucester, for **Everdear of Maisemore 45859**, born Feb. 18, 1919; *s.* Evercalm 33167, *d.* Evergreen 39th 58018 *by* Black Boy of Maisemore 35554.
1075 III. (£5.)—Sir Leonard Brassey, Bart., M.P., Apethorpe Hall, Peterborough, for **Edward of Rarichie 43304**, born April 16, 1917, bred by John A. Grant, Wester Rarichie, Nigg Station, Ross-shire; *s.* Eupator 30515, *d.* Erica of Finlarig 4th 52469 *by* Eccentric of Ballindalloch 30342.

Class 144.—*Aberdeen-Angus Bulls, born on or between December* 1, 1921, *and November* 30, 1922.

1084 I. (£15, R. N. for Champion,[1] & R. N. for Champion.[3])—Viscount Allendale, Dilston, Corbridge-on-Tyne, for **Electricity of Bywell 52341**, born Jan. 12, 1922; *s.* Exbert 45895 *d.* Eliana 59159 *by* Pride's Reviver 33660.
1083 II. (£10.)—H.R.H. The Prince of Wales, Duke of Cornwall, K.G., Bellever Farm, Princetown, Devon, for **Prince Proudfoot**, born June 4, 1922; *s.* Evinsdale 43331, *d.* Princess 2nd of Dartmoor 55582 *by* Rex of Port Lool 36885.
1085 III. (£5.)—F. Harold Turnbull, Lower House Farm, Llantwit Major, Cardiff, for **Pranksome 53401**, born March 3, 1922, bred by Brig.-General Lord Saltoun, C.M.G., Philorth; *s.* Beswick 47284, *d.* Drimmie's Pride 68122 *by* Beholder of Ballindalloch 42835.

Class 145.—*Aberdeen-Angus Bulls, born on or between December* 1, 1922, *and November* 30, 1923.

1089 I. (£15.)—F. Allingham, Dog Kennel Farm, Lilley, Luton, for **Explorer of Stagenhoe**, born May 1, 1923, bred by A. W. Bailey Hawkins, Stagenhoe Bottom Farm, Welwyn; *s.* Evidence of Ballindalloch 45884, *d.* Ethinison of Advie 58415 *by* Prince Benison of Ballindalloch 36711.
1094 II. (£10.)—Major Norman Kennedy, D.S.O., Doonholm, Ayr, for **Black Prince of Doonholm 54078**, born March 19, 1923, bred by the late James Kennedy, Doonholm, Ayr; *s.* Prince Benson of Ballindalloch 51308, *d.* Belonica 58593 *by* Mondello 27193.
1091 III. (£5.)—Sir Leonard Brassey, Bart., M.P., Apethorpe Hall, Peterborough, for **Black Jester 54062**, born Dec. 10, 1922; *s.* Black Knight of Auchterarder 45102, *d.* Joanna of Apethorpe 66478 *by* Eclipse of Ballindalloch 43266.
1087 IV. (£4.)—Viscount Allendale, Dilston, Corbridge-on-Tyne, for **Gerald of Bywell 54929**, born Dec. 19, 1922; *s.* Placeman of Bywell 48929, *d.* Grace of Auchterarder 53067 *by* Romeo of Ballindalloch 29941.
1098 R. N.—F. Harold Turnbull, Lower House Farm, Llantwit Major, Cardiff, for **Elsinore of Llantwit**.

Class 146.—*Aberdeen-Angus Cows or Heifers (in-milk), born on or before November* 30, 1921.

1101 I. (£15, Champion,[3] & Champion.[4])—J. J. Cridlan, Maisemore Park, Gloucester, for **Eve 3rd of Maisemore 64328**, born May 26, 1919, calved Dec. 23, 1923; *s.* Idyll of Maisemore 36219, *d.* Eve of Maisemore 52161 *by* Brave Briton of Maisemore 30218.
1103 II. (£10.)—Major Norman Kennedy, D.S.O., Doonholm, Ayr, for **Indora of Doonholm 69855**, born March 3, 1921, calved Jan. 1, 1924, bred by the late James Kennedy, Doonholm, Ayr; *s.* Ebelum of Ballindalloch 43249, *d.* Inula 49159 *by* Mondello 27193.

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[1] Perpetual Silver Challenge Trophy, value One Hundred Guineas, given through the Aberdeen-Angus Cattle Society, for the best Bull in Classes 143 to 145.

[2] Champion Gold Medal given by Breeders of English Aberdeen-Angus Cattle for the best animal of the opposite sex to that of the animal awarded the Champion Gold Medal of the Aberdeen-Angus Cattle Society in Classes 143 to 148.

[3] Champion Gold Medal given by the Aberdeen-Angus Cattle Society for the best animal in Classes 143 to 148.

[4] Champion Silver Medal given by the Argentine Aberdeen-Angus Association, for the best animal in Classes 143 to 148.

1105 III. (£5.)—C. W. Sofer-Whitburn, Amport St. Mary's, Andover, for **Erina of Curragh** 62535, born Dec. 24, 1917, calved Dec. 9, 1923, bred by Captain J. R. Greer, Curragh Grange, Kildare; *s.* Peeler of Curragh 40168, *d.* Erna of Curragh 56514 *by* Legion of Curragh 33437.

1100 IV. (£4.)—Sir Leonard Brassey, Bart., M.P., Apethorpe Hall, Peterborough, for **Perfect of Curragh** 67290, born Jan. 18, 1920, calved Dec. 31, 1923, bred by Captain J. R. Greer, Curragh Grange, Kildare; *s.* Legion of Curragh 33437, *d.* Peace of Curragh 54500 *by* Prince Fearless of Ballindalloch 28544.

H. C.—1106.

Class 147.—*Aberdeen-Angus Heifers, born on or between December* 1, 1921, and *November* 30, 1922.

1109 I. (£15.)—Viscount Allendale, Dilston, Corbridge-on-Tyne, for **Principle of Bywell** 70992, born Jan. 2, 1922; *s.* Prince George of Bywell 49019, *d.* Princess of Benton 2nd 57274 *by* Prince of Jesters 32404.

1113 II. (£10.)—J. J. Cridlan, Maisemore Park, Gloucester, for **Jilt 9th of Maisemore** 71428, born Jan. 12, 1922; *s.* George R. of Ballindalloch 30611, *d.* Jilt 8th of Maisemore 66763 *by* Prince of Salem 31112.

1111 III. (£5.)—Sir Leonard Brassey, Bart., M.P., Apethorpe Hall, Peterborough, for **Barakalla** 71181, born March 20, 1922; *s.* El Khabir 47880, *d.* Butterfly of Achnagonain 64886 *by* Eventus of Ballindalloch 39581.

1114 IV. (£4.)—William T. Elgey, Corpslanding, Cranswick, East Yorks, for **Enchantress of Corpslanding** 71581, born April 3, 1922; *s.* Geordie of Goodward 48285, *d.* Corpslanding Erica 64491 *by* Evinco of Ballindalloch 41555.

1115 R. N.—Major Norman Kennedy, D.S.O., Doonholm, Ayr, for **Elation of Doonholm.**

H. C.—1116.

Class 148.—*Aberdeen-Angus Heifers, born on or between December* 1, 1922, *and November* 30, 1923.

1128 I. (£15.)—Major Norman Kennedy, D.S.O., Doonholm, Ayr, for **Bignonia of Doonholm** 74403, born Jan. 4, 1923, bred by the late James Kennedy, Doonholm, Ayr; *s* Ebelum of Ballindalloch 43249, *d.* Biota of Doonholm 56632 *by* Mondello 27193.

1123 II. (£10.)—J. J. Cridlan, Maisemore Park, Gloucester, for **Pride 25th of Maisemore** 73797, born Dec. 28, 1922; *s.* George R. of Ballindalloch 30611, *d.* Pride 21st of Maisemore 69157 *by* Evergilt of Maisemore 45868.

1124 III. (£5.)—William T. Elgey, Corpslanding, Cranswick, East Yorks, for **Emily of Corpslanding** 73943, born Dec. 1, 1922; *s.* Geordie of Goodwood 48285, *d.* Esme of Corpslanding 66932 *by* Prince Toreador 44465.

1136 IV. (£4.)—F. Harold Turnbull, Lower House Farm, Llantwit Major, Cardiff, for **Erica of Llantwit** 75340, born March 21, 1923; *s.* Watchman of Garvault 51689, *d.* Esta Erica 73309 *by* Eventoir of Ballindalloch 36045.

1132 V. (£3.)—C. W. Sofer-Whitburn, Amport St. Mary's, Andover, for **Black Bell of Amport**, born Dec. 11, 1922; *s.* Jovial Eric 39863, *d.* Black Bell of Dalmeny 57130 *by* Heather Hero of Dalmeny 34618.

1133 R. N.—C. W. Sofer-Whitburn, for **Blackbird of Amport.**

H. C.—1118.

Cup.[1]—J. J. Cridlan.

Dun and Belted Galloways.

Class 151.—*Belted Galloway Bulls, born on or before November* 30, 1923.[2]

1143 I. (£15.)—The Marquis of Bute, K.T., Craigeach, Kirkcowan, for **Mochrum Royal Record** 61 B, born in March, 1919, bred by Robert Graham, Auchengassel, Twynholm; *s.* Mark Champion 55B, *d.* Mark Fanny 211 B *by* Legacy.

1144 II. (£10.)—Miss de Montgeon, Eastington Hall, Upton-on-Severn, for **Eastington Knockbrex Pirate** 30B, born Jan. 27, 1920, bred by Mrs. Brown, Knockbrex, Kirkcudbright; *s.* Knockbrex Viking 50B, *d.* Gartmore Sonsie 146B *by* Boreland Royal Blend 24B.

Class 152.—*Belted Galloway Cows or Heifers (in-milk), born on or before November* 30, 1921.

1147 I. (£15.)—The Marquis of Bute, K.T., Craigeach, Kirkcowan, for **Mochrum Minnie** 236B, born Feb. 18, 1921, calved Nov. 10, 1923; *s.* Mochrum Royal Record 61B, *d.* Mochrum Gip 242B.

1148 II. (£10.)—Miss de Montgeon, Eastington Hall, Upton-on-Severn, for **Eastington Whin** 142B, born in May, 1919, calved Feb. 24, 1924, breeder unknown.

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[1] Silver Challenge Cup, value £25, given through the English Aberdeen-Angus Cattle Association for the most points awarded in a combination of entries in Classes 143 to 148, on the basis of: Four points for a First Prize, three points for a Second Prize, two points for a Third Prize, one point for a Reserve, two points for a Championship, and one point for a Reserve for a Championship.

[2] Prizes given by the Dun and Belted Galloway Cattle Breeders' Association.

Galloways.

Class 153.—*Galloway Bulls, born on or before November* 30, 1923.

1153 I. (£15.)—JOHN CUNNINGHAM, Tarbreoch, Dalbeattie, for **Sapphire** 12268, born May 4, 1914, bred by Thomas Biggar and Sons, Chapelton, Dalbeattie; *s.* Pure Gem 11356, *d.* Lizzie 2nd of Chapelton 19464 *by* Lord William 7108.

1157 II. (£10.)—JOHN SCOTT, Drumhumphry, by Dalbeattie, for **Drumhumphry Perfection** 14900, born June 2, 1921; *s.* Cashier of Tarbreoch 13429, *d.* Ruby of Drumhumphry 21115 *by* Othello of Kilquhanity 8469.

Class 154.—*Galloway Cows or Heifers (in-milk), born on or before November* 30, 1921.

1159 I. (£15.)—JOHN CUNNINGHAM, Tarbreoch, Dalbeattie, for **Tarbreoch Blue Bell 3rd** 26883, born May 26, 1919, calved Feb. 16, 1924; *s.* Sapphire 12268, *d.* Tarbreoch Blue Bell 22589 *by* Tarbreoch Chief 10883.

Class 155.—*Galloway Heifers, born on or between December* 1, 1921, *and November* 30, 1922.

1165 I. (£15.)—JOHN CUNNINGHAM, Tarbreoch, Dalbeattie, for **May Queen 27th of Tarbreoch** 28457, born Feb. 5, 1922; *s.* Sir Digby 2nd of Craigneston 14155, *d.* May Queen 21st of Tarbreoch 27470 *by* Sapphire 12268.

Class 156.—*Galloway Heifers, born on or between December* 1, 1922, *and November* 30, 1923.[1]

1171 I. (£15.)—JOHN CUNNINGHAM, Tarbreoch, Dalbeattie, for **Tarbreoch Blue Bell 6th** 29002, born Jan. 10, 1923; *s.* Sir Digby 2nd of Craigneston 14155, *d.* Tarbreoch Blue Bell 3rd 26883 *by* Sapphire 12268.

1172 II. (£10.)—JOHN CUNNINGHAM, for **Tarbreoch Dora 24th** 29001, born Jan. 6, 1923; *s.* Sir Digby 2nd of Craigneston 14155, *d.* Tarbreoch Lena 3rd 26879 *by* Sapphire 12268.

1175 III. (£5.)—JOHN SCOTT, Drumhumphry, by Dalbeattie, for **Drumhumphry Joy** 29350, born Dec. 3, 1922; *s.* Cashier of Tarbreoch 13429, *d.* Drumhumphry Gertie 6th 28274 *by* Hopewell of Morrington 11933.

Park Cattle.

Class 157.—*Park Polled or Horned Bulls, born in or before* 1923.

1178 I. (£15.)—MAJOR Q. E. GURNEY, Bawdeswell Hall, Norfolk, for **Bawdeswell Courtier** 169, born June 16, 1922, bred by Buxton and Birkbeck, Bolwick; *s.* Bawdeswell Elk 111, *d.* Bawdeswell Coronet 180 *by* Kelmarsh Monarch.

1177 II. (£10.)—THE DUKE OF BEDFORD, K.G., Woburn Abbey, Beds, for **Woburn Perfection 9th**, born March 27, 1923; *s.* Woburn Perfection 2nd 89, *d.* Woburn Buckingham 6th 482 *by* No. 4 Chartley Bull.

1176 III. (£5.)—THE DUKE OF BEDFORD, K.G., for **Woburn Matthias 2nd**, born April 26 1923; *s.* Faygate Matthias 71, *d.* Woburn Buckingham 11th *by* Woburn Perfection 33.

Dairy Shorthorns.

Class 159.—*Dairy Shorthorn Bulls, born in or before* 1921.

1183 I. (£15, & Champion.[2])—THE EARL OF BESSBOROUGH, Bessborough, Piltown, Co. Kilkenny, for **Bessborough Polonius** 140959, roan, born Nov. 10, 1917; *s.* Bessborough Nestor 135121, *d.* Bessborough Blonde 15th *by* Keir Goldfinder 99249.

1195 II. (£10, & R. N. for Champion.[2])—LT.-COL. W. M. PRYOR, D.S.O., Weston, Stevenage, for **Lannock Hero** 173240, red and little white, born May 2, 1921; *s.* Creme de Menthe 119683, *d.* Betty 24th *by* Cranford Regulator 119677.

1198 III. (£5.)—ROBERT N. TORY, Anderson, Blandford, for **Kelmscott Conjuror 3rd** 137269, roan, born June 12, 1916, bred by R. W. Hobbs and Sons, Kelmscott, Lechlade; *s.* Kelmscott Acrobat 4th 126217, *d.* Helpmate 15th *by* Kelmscott Tarquin 105853.

1194 IV. (£4.)—T. L. MARTIN, Ashe Warren House, Overton, Hants, for **Kelmscott Conjuror 28th** 156774, roan, born July 7th, 1919, bred by R. W. Hobbs and Sons, Kelmscott, Lechlade; *s.* Kelmscott Acrobat 4th 126217, *d.* Sybil 18th *by* Royal Proctor 110029.

1192 V. (£3.)—F. S. FRANCIS, Wilkin Throop, Templecombe, Somerset, for **Colescombe Dolphin** 170433, roan, born May 24, 1921, bred by W. G. Millar, Bampton, Oxon; *s.* Knowsley Dolphin 137428, *d.* Combebank Coral *by* Foundation Stone 105524.

1185 R. N.—T. E. CLARKE, Challan Hall, Silverdale, Lancs, for **Leek Rosemary's Heir.**

H. C.—1184, 1197.

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[1] Prizes given by the Galloway Cattle Society.

[2] Champion Prize of £10 given by the Dairy Shorthorn Association, for the best Bull in Classes 159 to 163.

Class 160.—*Dairy Shorthorn Bulls, born in* 1922.

1210 I. (£15.)—Fred. T. Fisher, Lee Farm, Pinkneys Green, Maidenhead, for **Kelmscott Imperialist 71st** 182006, light roan, born May 13, bred by R. W. Hobbs and Sons, Kelmscott, Lechlade; *s.* Crême de Menthe 119683, *d.* Primula 121st *by* Royal Hampton 11th 96908.

1207 II. (£10.)—Captain P. D. A. Courtenay, Overmere, Burnham-on-Sea, for **Conjuror 2nd** 179738, roan, born May 23, bred by G. D. Hibberd, Corfe Mullen, Wimborne, Dorset; *s.* Kelmscott Conjuror 3rd 137269, *d.* Damory Barrington Duchess 4th *by* Faithful Knight 95140.

1226 III. (£5.)—The Duke of Westminster, G.C.V.O., D.S.O., Eaton Hall, Chester, for **Eaton Dictator** 180520, roan, born June 4; *s.* Cherry Ben 147869, *d.* Alveley Object 5th *by* Walnut Captain 128710.

1208 IV. (£4.)—Mrs. J. E. Ellis, Wrea Head Farm, Scalby, Scarborough, for **Fairy Count 2nd** 180702, red roan, born Feb. 17, bred by T. J. Tuton, Camerton Hall, Birstwick, Hull; *s.* Brandsby's Royal Prince 154223, *d.* Keyingham Fairy 6th 8612 *by* Grandee 115670.

1220 V. (£3.)—J. Pierpont Morgan, Wall Hall, Aldenham, Watford, for **Aldenham Matchless Joe** 177681, red and little white, born May 30; *s.* Cantab Jocelyn's Armistice 147744, *d.* Newlands Dainty 6th *by* Mayflower Boy 116518.

1200 R. N.—Sir John Anderson, Bart., Harrold Priory, Bedford, for **Champion Duke.**

1226, 1317, 1341 **R. N. for Cup.**[1]—The Duke of Westminster, G.C.V.O., D.S.O., for **Eaton Dictator, Eaton Red Rose 2nd and Monkhill Duchess 3rd.**

H. C.—1224. **C.**—1206, 1209, 1214.

Class 161.—*Dairy Shorthorn Bulls, born on or between January* 1 *and March* 31, 1923.

1230 I. (£15.)—Thomas and Stanley Braithwaite, Fieldgrove, Bitton, Glos, for **Fieldgrove Conjuror 8th**, red and little white, born Feb. 3; *s.* Kelmscott Conjuror 36th 164373, *d.* Valentine 25th (Vol. 58, p. 886) *by* Daisy Ingram 105184.

1242 II. (£10.)—J. M. Strickland, Bainesse, Catterick, for **Bainesse Lord Broadhooks 4th**, red and little white, born Feb. 3; *s.* Brandsby's Aristocrat 5th 169449, *d.* Brandsby's Lady Broadhooks 6th (Vol. 65, p. 1130) *by* Welcome Guest 140083.

1237 III. (£5.)—G. W. Isherwood, Edge Fold and Lower House Farms, Entwistle, Bolton, for **Longhills Lord Rufus**, dark red, born Feb. 3, bred by E. A. Smith, Longhills, Lincoln; *s.* Babraham Lord Price 140574, *d.* Longhills Moonstone (Vol. 62, p. 1095) *by* Duke of Darlington 115163.

1232 IV. (£4.)—H. A. Brown, Croft House, Grendon, Atherstone, for **Grendon Watercress**, roan, born Jan. 16; *s.* Grendon Hartebeest 163776, *d.* Grendon Cressida (Vol. 65, p. 632) *by* Lord Nottingham 116317.

1235 V. (£3.)—F. S. Francis, Wilkins Throop, Templecombe, Somerset, for **Anderson Bates 4th**, red, born March 8, bred by R. N. Tory, Anderson, Blandford; *s.* Anderson Priceless Bates 160742, *d.* Solo 101st 4048 *by* Kelmscott Juggler 116052.

1244 R. N.—Major S. P. Yates, Broughton Grange, Banbury, for **Sorbrook Premier.**

1232, 1296, 1344 **Cup.**[1]—H. A. Brown, for **Grendon Watercress, Lady Winsonia 2nd and Grendon Cress.**

H. C.—1239.

Class 162.—*Dairy Shorthorn Bulls, born on or between April* 1 *and June* 30, 1923.[2]

1263 I. (£15.)—Alfred Palmer, Wokefield Park, Mortimer, Berks, for **Wokefield Governour**, roan, born May 23; *s.* Wokefield Advocate 160465, *d.* Longhills Greeting (Vol. 60, p. 1072) *by* Babraham Nobleman 101326.

1253 II. (£10.)—A. Ross Fielding, The Leasowes, Hilderstone, Stone, Staffs, for **Hilderstone Victor 2nd**, roan, born April 24; *s.* Carleton Style 147781, *d.* Dalby Vittoria 36166 *by* Czar 130499.

1267 III. (£5.)—J. M. Strickland, Bainesse, Catterick, for **Bainesse Royal Prince 6th**, roan, born May 6; *s.* Brandsby's Aristocrat 5th 169449, *d.* Brandsby's Princess Royal 4th 8099 *by* Champion Premier 141495.

1272 IV. (£4.)—Sir Gilbert A. H. Wills, Bart., Batsford Park, Moreton-in-Marsh, for **Batsford Popcorn**, roan, born May 15; *s.* Thornby Pioneer 133922, *d.* Duchess of Cornhill 15th (Vol. 65, p. 1151) *by* Gainford Recorder 125646.

1261 V. (£3.)—J. Pierpont Morgan, Wall Hall, Aldenham, Watford, for **Aldenham Marvel 2nd**, roan, born April 14; *s.* Cotlands Waterloo Duke 6th 155058, *d.* Lady Mollie (Vol. 65, p. 793) *by* Danger Signal 108337.

1247 R. N.—Denis Aldridge, Sketchley Hall Farm, Hinckley, for **Wild Eyes Count.**

H. C.—1245, 1246, 1257, 1262, 1273. **C.**—1256, 1259, 1264.

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[1] **Silver Challenge Cup, value 100 Guineas, given through the Dairy Shorthorn Association, for the best group of one Bull and two Cows or Heifers in Classes 159 to 167. Two at least of the animals must have been bred by the Exhibitor.**

[2] **Prizes, except Fourth and Fifth, given by the Dairy Shorthorn Association.**

Class 163.—*Dairy Shorthorn Bulls, born on or between July* 1 *and December* 31 1923.

1290 I. (£15.)—Sir Gilbert A. H. Wills, Bart., Batsford Park, Moreton-in-Marsh, for **Batsford Manager**, roan, born Oct. 2; *s.* Thornby Prime Minister 167526, *d.* Queen Marion 9414 *by* Gold Flake 142691.

1275 II. (£10.)—Denis Aldridge, Sketchley Hall Farm, Hinckley, for **Right Royal**, born Sept. 2; *s.* Count Rubio 162503, *d.* Watercrook Hylda 2nd 5859 *by* Merry Prince 137985.

1276 III. (£5.)—Denis Aldridge, for **Vain Man**, dark roan, born Sept. 7; *s.* Kelmscott Dreadnought 21st 156806, *d.* Vain Lucy 5th 10875 *by* Benedict's Pride 111013.

1291 IV. (£4.)—Major S. P. Yates, Broughton Grange, Banbury, for **Sorbrook Clarence**, roan, born Sept. 30; *s.* Foggathorpe Premier 163306, *d.* Clara's Beauty (Vol. 65, p. 685) *by* Spency Yet 133719.

1287 V. (£3.)—Robert N. Tory, Anderson, Blandford, for **Anderson Dairyman**, roan, born Oct. 2; *s.* Bainesse Dairyman 2nd 168657, *d.* Ridge Rosedale (Vol. 65, p. 672) *by* Ridge Chief 127710.

1280 R. N.—F. S. Francis, Wilkin Throop, Templecombe, Somerset, for **Throop Nottingham.**

H. C.—1285. C.—1284, 1286.

Class 164.—*Dairy Shorthorn Cows (in-milk), born in or before* 1917.[1]

1296 I. (£15, & Champion.[2])—H. A. Brown, Croft House, Grendon, Atherstone, for **Lady Winsonia 2nd** (Vol. 63, p. 1259), red and little white, born Feb. 12, 1916, calved May 28, 1924, bred by T. W. Workman, The Beeches, Carleton, Carlisle; *s.* Walby Star 128699, *d.* Lady Windsor 29th *by* Bright Minican 104872.

1300 II. (£10.)—A. R. Fish, Holme Mead, Hutton, Preston, for **Combebank Johnby 5877**, red roan, born May 9, 1917, calved June 14, 1924, bred by R. L. Mond, Sevenoaks, Kent; *s.* Foundation Stone 105524, *d.* Johnby Rose 10th *by* Bouncing Boy 94395.

1293 III. (£5.)—Denis Aldridge, Sketchley Hall Farm, Hinckley, for **Daisy Queen** (Vol. 62, p. 961), red and white, born July 10, 1915, calved June 17, 1924, bred by J. Moffat, Spital, Kendal; *s.* Lord Nottingham 116317, *d.* Daisy Belle 12th *by* Grove Minstrel 99036.

1317 IV. (£4.)—The Duke of Westminster, G.C.V.O., D.S.O., Eaton Hall, Chester, for **Eaton Red Rose 2nd** (Vol. 64, p. 1371), roan, born Feb. 19, 1917, calved June 22, 1924; *s.* Leek Conjuror 121142, *d.* Red Rose 6th *by* Wellborn 107459.

1298 V. (£3.)—Lt.-Col. Viscount Feilding, Newnham Paddox, Rugby, for **Watercrook Cowslip** (Vol. 63, p. 1016), white, born Dec. 1, 1916, calved June 5, 1924, bred by J. Moffat, Spital, Kendal; *s.* Proud Prince 127480, *d.* Cowslip 12th *by* Prince Gongora 81909.

1292 R. N.—Denis Aldridge, Sketchley Hall Farm, Hinckley, for **Bridget's Daisy 3rd.**

1292, 1293, 1323 Cup.[3]—Denis Aldridge, for **Bridget's Daisy 3rd, Daisy Queen** and **Marion's Beauty.**

1317, 1341, 1363 R. N. for Cup.[3]—The Duke of Westminster, G.C.V.O., D.S.O., for **Eaton Red Rose 2nd, Monkhill Duchess 3rd** and **Caton Jenny Gift.**

H. C.—1299. C.—1297, 1315.

Class 165.—*Dairy Shorthorn Cows (in-milk), born in* 1918 *or* 1919.

1332 I. (£15.)—T. L. Martin, Ashe Warren House, Overton, Hants, for **Comely Maid 4th 9505**, red and little white, born Oct. 8, 1919, calved June 19, 1924, bred by T. W. Workman, The Beeches, Carleton, Carlisle; *s.* Wedgewood 146240, *d.* Comely Maid *by* Moresdale Masterpiece 109460.

1323 II. (£10.)—Denis Aldridge, Sketchley Hall Farm, Hinckley, for **Marion's Beauty** (Vol. 65, p. 972), red and white, born Oct. 18, 1918, calved June 23, 1924, bred by J. Moffat, Spital, Kendal; *s.* Ruler 133385, *d.* Beauty *by* Loyalist 112383.

1341 III. (£5.)—The Duke of Westminster, G.C.V.O., D.S.O., Eaton Hall, Chester, for **Monkhill Duchess 3rd 7107**, roan, born Jan. 14, 1919, calved June 15, 1924, bred by John Rickerby, Monkhill, Burgh-by-Sands, Carlisle; *s.* Carleton Dairy King 141439, *d.* Duchess of Armathwaite 14th *by* Lancaster 109107.

1336 IV. (£4.)—Lt.-Col. R. and Mrs. M. Mostyn-Owen, Woodhouse, Oswestry, for **Rosette Prim 4th 8217**, red and little white, born Feb. 17, 1919, calved May 26, 1924, bred by W. Taylor, Syke Side, Soulby, Kirkby Stephen; *s.* Royal Stockman 145183, *d.* Rosette Prim *by* Marmion Robin 112446.

1329 V. (£3.)—T. E. Clarke, Challan Hall, Silverdale, Lancs, for **Plaspower Rosebud** (Vol. 65, p. 770), roan, born Aug. 16, 1918, calved May 25, 1924, bred by Mrs. FitzHugh, Plas Power, Wrexham; *s.* White Heather 140132, *d.* Plaspower Rose *by* Admiral 118457.

1335 R. N.—Lt.-Col. R. and Mrs. M. Mostyn-Owen, for **Apley Proud Kirklevington.**

H. C.—1337, 1340.

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[1] Prizes, except Fourth and Fifth, given by the Shorthorn Society.

[2] Champion Prize of £10 given by the Shorthorn Society, for the best Cow or Heifer in Classes 164 to 167. A Silver Medal is given by the Shorthorn Society to the Breeder of the Champion Dairy Shorthorn Cow.

[3] Silver Challenge Cup, value Fifty Guineas, given through the Dairy Shorthorn Association, for the best group of three Cows or Heifers in Classes 164 to 167.

Class 166.—*Dairy Shorthorn Cows (in-milk), born in* 1920.

1367 I. (£15, & R. N. for Champion.[1])—MAJOR S. P. YATES, Broughton Grange, Banbury, for **Sorbrook Foggathorpe** 20122, red and little white, born May 15, calved May 21, 1924; *s.* Preshute Barrington 144502, *d.* Loobagh Foggathorpe 5th *by* Loobagh Duke 126555.

1357 II. (£10.)—J. PIERPONT MORGAN, Wall Hall, Aldenham, Watford, for **Longhills Belle 2nd** 18128, red and little white, born Jan. 13, calved June 7, 1924, bred by E. A. Smith, Longhills, Lincoln; *s.* Oxford Bridegroom 121914, *d.* Longhills Belle *by* Duke of Darlington 115163.

1363 III. (£5.)—THE DUKE OF WESTMINSTER, G.C.V.O., D.S.O., Eaton Hall, Chester, for **Eaton Jenny Gift** 19456, roan, born April 10, calved June 14, 1924; *s.* Carleton Style 147781, *d.* Favourite Jenny Gift *by* Diamond Gift 125181.

1344 IV. (£4.)—H. A. BROWN, Croft House, Grendon, Atherstone, for **Grendon Cress** 10738, roan, born May 4, 1920, calved May 24, 1924; *s.* Lord Nottingham 116317, *d.* Cressida 42nd *by* Dairy Ingram 105184.

1360 V. (£3.)—J. G. PEEL, Peover Hall, Over Peover, Knutsford, for **Backwood Seraphina** 19514, red and little white, born June 5, calved June 8, 1924, bred by W. E. Whineray, Leighton Court, Neston; *s.* Preshute Herald 151132, *d.* Leazow Seraphina 3rd *by* Mainspring 109310.

1352 R. N.—G. P. GOLDEN, Eaglesfield, Leire, Rugby, for **Lady Doreen 4th.**

C.—1345, 1361, 1362.

Class 167.—*Dairy Shorthorn Heifers (in-milk), born in* 1921.

1377 I. (£15.)—G. P. GOLDEN, Eaglesfield, Leire, Rugby, for **Lady Doreen 6th** 24332, red and little white, born Feb. 18, calved May 22, 1924; *s.* Lord Leicester 2nd 157373, *d.* Dorcas *by* Conjuror 91310.

1383 II. (£10.)—T. L. MARTIN, Ashe Warren House, Overton, Hants, for **Duchess of Bozeat 12th** 21420, roan, born Jan. 20, calved May 6, 1924, bred by John Britten, Bozeat Manor, Wellingborough; *s.* Loobagh Beau 3rd 143635, *d.* Grand Duchess *by* Double Barrington 115091.

1373 III. (£5.)—A. R. FISH, Holme Mead, Hutton, Preston, for **Haining Waterloo 2nd** 23990, roan, born Aug. 24, calved May 23, 1924, bred by I. H. and T. Forster, West View, Allandale; *s.* Haining Prince 156282, *d.* Haining Waterloo *by* Moppy's Champion 144066.

1375 IV. (£4.)—MRS. FITZ HUGH, Plas Power, Wrexham, for **Plaspower Darlington** 23883, white, born Sept. 22, calved May 10, 1924; *s.* Colescombe King John 154899, *s.* Heathenden Darlington *by* Preshute Waterloo 138520.

1387 V. (£3.)—LT.-COL. R. and MRS. M. MOSTYN-OWEN, Woodhouse, Oswestry, for **Olive Leaf 45th** 31825, roan, born March 31, calved May 12, 1924, bred by C. C. L. Williams, Llanrumney Hall, Cardiff; *s.* Prince Pailful 151204, *d.* Olive Leaf 39th *by* Llanrumney Wild King 121202.

1386 R. N.—J. PIERPONT MORGAN, Wall Hall, Aldenham, Watford, for **Rockley Barrington Joan.**

Non-Pedigree Dairy Shorthorns.

Class 168.—*Non-Pedigree Dairy Shorthorn Cows (in-milk), born in or before* 1918.

1406 I. (£15.)—J. L. SHIRLEY, Silverton, Woughton, Bletchley, for **Maisie 2nd**, roan, age and breeder unknown, calved May 23, 1924.

1403 II. (£10.)—H. A. BROWN, Croft House, Grendon, Atherstone, for **Isabelle**, roan, born Feb. 18, 1918, calved April 7, 1924; *s.* Barrington Snowstorm 2nd 124184, *d. by* Festive Prince.

1399 III. (£5.)—MISSES M. and E. BALFOUR, New Bells, Haughley, Suffolk, for **Poppy**, dark red, born in 1917, calved Feb. 23, 1924, breeder unknown.

1404 IV. (£4.)—THOMAS HATTON, Anstey Pastures, Leicester, for **Polly**, roan, age unknown, calved Nov. 14, 1923, bred by G. A. Protheroe, Repton, Derby.

Class 169.—*Non-Pedigree Dairy Shorthorn Cows or Heifers (in-milk), born in or after* 1919.[2]

1409 I. (£15.)—J. PIERPONT MORGAN, Wall Hall, Aldenham, Watford, for **Empress 8th** 1614, roan, born March 10, 1919, calved June 4, 1924, bred by J. Almond, Buckley Hill Farm, Sefton, Liverpool; *s.* Hawkrigg Prince 136882, *d.* Empress 149.

Lincolnshire Red Shorthorns.

Class 170.—*Lincolnshire Red Shorthorn Bulls, born in or before* 1921.

1412 I. (£15, & Champion.[3])—ROBERT MOSS, Hallgates, Cropston, Leicester, for **Soignee Fashion** 14879, born Dec. 22, 1918, bred by Alfred Lewis, Westacre, Norfolk; *s.* Elkington Hercules 3rd 13432, *d.* Soignee No. 30.

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[1] Champion Prize of £10 given by the Shorthorn Society, for the best Cow or Heifer in Classes 164 to 167. A Silver Medal is given by the Shorthorn Society to the Breeder of the Champion Dairy Shorthorn Cow.

[2] Prizes given by the Dairy Shorthorn Association.

[3] Champion Silver Cup, value £10, given by the Lincolnshire Red Shorthorn Association for the best Bull.

1410 II. (£10, & R. N. for Champion.[1])—ROWLAND F. AUBREY, Weybridge, Ellington, Hunts, for **Kirmington Weybridge 18674**, born March 22, 1921, bred by George Marris, Kirmington, Ulceby; *s.* Hallington Ascent 15487, *d.* Pendley Yarborough Ruby 2nd *by* Saltfleet Marshman 4958.

1411 III. (£5.)—ALFRED LEWIS, Soignée, Westacre, King's Lynn, for **Strubby Croxton 6th 18050**, born July 20, 1920, bred by J. & W. Farrow & Sons, Strubby Manor, Alford; *s.* Strubby Croxton Ruby 33rd 14933, *d.* Lady Cardiff 9th *by* Strubby Nonpareil Bonus 8552.

Class 171.—*Lincolnshire Red Shorthorn Bulls, born in* 1922.

1416 I. (£15.)—HIS MAJESTY THE KING, Sandringham, Norfolk, for **Wolferton Majestic 19057**, born May 16, bred by T. H. B. Freshney, Worlaby, Brigg; *s.* Scampton Quality 11912, *d.* Scampton May *by* Anderby Pilot 5793.

Class 172.—*Lincolnshire Red Shorthorn Bulls, born in* 1923.

1420 I. (£15.)—J. T. COX, Foston Hall, Leicester, for **Foston Dictator**, born April 10, bred by W. and J. Brown, Hagnaby House, Alford; *s.* King Majestic 15572, *d.* Hagnaby Violet No. 4 *by* Thimbleby Marshman 12th 12060.

1419 II. (£10.)—H. G. CLARKE, Forest View, Hinckley, for **Forest Lord 18497**, born May 15; *s.* Sturton Atlas 17007, *d.* Wykin Diamond *by* Wykin Polar Star 15080.

Class 173.—*Lincolnshire Red Shorthorn Cows or Heifers (in-milk), born in or before* 1921.

1426 I. (£15.)—H. G. CLARKE, Forest View, Hinckley, for **Illston Rosebud** (Vol. 29, p. 317), born Aug. 19, 1919, calved Nov. 4, 1923, bred by T. Dyer & Son, Illston, Billesdon, Leicester; *s.* Elkington Guardian 20th 14454, *d. by* St. Leger's Premier 17928.

Class 174.—*Lincolnshire Red Shorthorn Cows or Heifers (in-milk), born in or before* 1921, *showing the best milking properties.*[2]

1434 I. (£15, & Champion.[3])—STANLEY BLUNDELL, Bendish House, Welwyn, Herts, for **Bendish Ada 5th** (Vol. 24, p. 316), born Dec. 7, 1917, calved June 7, 1924; *s.* King of the Burtons 10020, *d.* Bendish Ada 2nd *by* Bracebridge Prince 2nd 7364.

1436 II. (£10, & R. N. for Champion.[3])—J. O. BURCHNALL, The Manor House, Aston Flamville, Hinckley, for **Flamville Dairymaid 127th** (Vol. 26, p. 315), born Feb. 28, 1917, calved May 23, 1924; *s.* Worlaby 68th 10402, *d. by* Norton Ruby 6232.

1447 III. (£5.)—LT.-COL. SIR ARCHIBALD WEIGALL, K.C.M.G., Petwood, Woodhall Spa, for **Langford Polly 5th** (Vol. 21, p. 336), born in Sept., 1914, calved April 20, 1924, bred by W. Reading & Sons, Rectory Farm, Langford, Lechdale; *s.* Burton Gay Boy 8842, *d.* Langford Polly 3rd *by* Burton Langford 7404.

1438 IV. (£4.)—J. T. COX, Foston Hall, Leicester, for **Foston No. 18**, born in March, 1917, calved May 5, 1924; *s.* Eastover Challenger (108520), *d. by* Wiston Blood Red 8685.

1448 V. (£3.)—LT.-COL. SIR ARCHIBALD WEIGALL, K.C.M.G., for **Sibsey Rose** (Vol. 28, p. 484), born Sept. 4, 1913, calved June 7, 1924, bred by A. H. Newton, Sibsey, Boston, Lincolnshire; *s.* Croft Somerby Gem 7486, *d. by* Thornton Harry 5695.

1435 R. N.—STANLEY BLUNDELL, for **Bendish Charm 4th.**

Class 175.—*Lincolnshire Red Shorthorn Heifers, born in* 1922.

1449 I. (£15, & Champion.[4])—HIS MAJESTY THE KING, Sandringham, Norfolk, for **Wolferton Beauty** (Vol. 29, p. 238), born Jan. 30; *s.* Scampton Quality 11912, *d.* Thurlaston Beauty *by* Pendley Result 13748.

1459 II. (£10.)—LT.-COL. SIR ARCHIBALD WEIGALL, K.C.M.G., Petwood, Woodhall Spa, for **Petwood Jessica 3rd** (Vol. 29, p. 526), born Sept. 8; *s.* Kirmington Quality 3rd 16609, *d.* Petwood Jessica 2nd *by* Stixwould Prince 12936.

1455 III. (£5.)—MISSES E. M. and S. M. GRANTHAM, The Rookery, West Keal, Spilsby, for **Keal Pearl** (Vol. 29, p. 380), born May 9; *s.* Pendley Harold 14757, *d.* Keal Favourite 13th *by* Keal Rollo 6925.

1450 IV. (£4.)—J. BOURNE, Bonby Manor, Brigg, for **Bonby Carr Rosie 13th** (Vol. 29, p. 281), born Feb. 25; *s.* Lincoln Duke 15620, *d. by* Croxton Ruby 25th 8931.

1456 R. N.—ALFRED LEWIS, Soignée, Westacre, King's Lynn, for **Soignee No. 207.**

Class 176.—*Lincolnshire Red Shorthorn Heifers, born in* 1923.

1466 I. (£15, & R. N. for Champion.[4])—C. DE PARAVICINI, Birkholme Manor, Corby, Grantham, for **Beacon Hill Fatima**, born Jan. 7; *s.* Beacon Hill Dago 16082, *d.* Beacon Hill Fanny (Vol. 27, p. 648) *by* Bloxholme Jumbo 10493.

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[1] Champion Silver Cup, value £10, given by the Lincolnshire Red Shorthorn Association for the best Bull.

[2] Prizes, except Fourth and Fifth, given by the Lincolnshire Red Shorthorn Association.

[3] Champion Silver Cup, value £10, given by the Lincolnshire Red Shorthorn Association for the best Female of the Dairy type.

[4] Champion Silver Cup, value £10, given by the Lincolnshire Red Shorthorn Association for the best Female other than Dairy type.

1461 II. (£10.)—ROWLAND F. AUBREY, Weybridge, Ellington, Hunts, for **Petwood Rosebud**, born March 26, bred by Lt.-Col. Sir A. Weigall, Petwood, Woodhall Spa; *s.* Retford Dairyman 16814, *d.* Risby Rose 8th (Vol. 25, p. 296) *by* Bonby Emperor 6598.

1465 III. (£5.)—CHARLES BEMBRIDGE, Walcott, Lincoln, for **Anwick No. 19**, born June 7; *s.* Scampton Vici 16896, *d.* Benniworth Anwick (Vol. 23, p. 282) *by* Keddington Comet 3443.

1460 IV. (£4.)—HIS MAJESTY THE KING, Sandringham, Norfolk, for **Wolferton Treasure 2nd**, born March 23; *s.* Wolferton Prince 15059, *d.* Pendley Treasure (Vol. 24, p. 452) *by* Croxton Ruby 33rd 8939.

1464 V. (£3.)—CHARLES BEMBRIDGE, for **Anwick No. 18**, born June 4; *s.* Scampton Vici 16896, *d.* Anwick Rosebud (Vol. 26, p. 283) *by* Beacon Hill Tommy 13190.

1467 R. N.—T. DYER & SON, Illston, Billesdon, Leicestershire, for **Hagnaby Marigold.**

Devons.

Class 177.—*Devon Bulls, born in or before* 1922.

1475 I. (£15, & R. N. for Champion.[1])—CHARLES MORRIS, Highfield Hall, St. Albans, and Bishop's Lydeard, for **Highfield Nobleman 11912**, born Jan. 26, 1922; *s.* Highfield Gem 2nd 9329, *d.* Northmoor Gipsy 2nd 32455 *by* Gotton Prince 2nd 8070.

Class 178.—*Devon Bulls, born in* 1923.

1477 I. (£15, & Champion.[1])—CHARLES MORRIS, Highfield Hall, St. Albans and Bishop's Lydeard, for **Highfield Ringleader**, born Jan. 23; *s.* Highfield Gem 2nd 9329, *d.* Northmoor Cherry 31554 *by* Gotton Prince 2nd 8070.

Class 179.—*Devon Cows or Heifers (in-milk), born in or before* 1921.

1479 I. (£15.)—CHARLES MORRIS, Highfield Hall, St. Albans and Bishop's Lydeard, for **Highfield Lottie 3rd 33158**, born Feb. 18, 1920, calved Jan. 18, 1924; *s.* Highfield Gauge 9689, *d.* Highfield Lottie 27769 *by* Longforth Mailbag 7439.

1480 II. (£10.)—CHARLES MORRIS, for **Highfield Yendell Beauty 33173**, born June 14, 1920, calved March 3, 1924; *s.* Highfield Gem 2nd 9329, *d.* Beauty 5th 28861 *by* Cutsey Gordon 8004.

Class 181.—*Devon Heifers, born in* 1922.

1484 I. (£15, & Champion.[2])—CHARLES MORRIS, Highfield Hall and Bishop's Lydeard, for **Highfield Cherry 2nd 35224**, born Jan. 30; *s.* Highfield Gem 2nd 9329, *d.* Northmoor Cherry 31554 *by* Gotton Prince 2nd 8070.

Class 182.—*Devon Heifers, born in* 1923.

1487 I. (£15, & R. N. for Champion.[2])—E. G. TRIGGOL, Wood Farm, Tiddington, Bridgwater, for **Tiddington Plum**, born April 24; *s.* All Right 10832, *d.* Brunty 24050 *by* Don Juan 4965.

1486 II. (£10.)—CHARLES MORRIS, Highfield Hall, St. Albans, and Bishop's Lydeard, for **Highfield Fable 9th 36161**, born Jan. 1; *s.* Highfield Reminder 3rd 11069, *d.* Highfield Fable 2nd 29394 *by* Highfield General 8105.

South Devons.

Class 183.—*South Devon Bulls, born in or before* 1922.

1489 I. (£15.)—CAPTAIN J. T. CORYTON, Pentillie Castle, St. Mellion, Cornwall, for **Mothecombe Milkman 7245**, born Jan. 29, 1917, bred by J. M. Wroth, Combe, Holbeton, Plymouth; *s.* Brownstone Laddie 4774, *d.* Kitty 11346 *by* Merafield Paymaster 3491.

Longhorns.

Class 188.—*Longhorn Bulls, born in or before* 1923.

1502 I. (£15.)—W. E. SWINNERTON, Manor House, Over Whitacre, Birmingham, for **Stivichall Conquest**, red and white, born March 14, 1923; *s.* Whitacre Conqueror 844, *d.* Stivichall Gladeyes (Vol. 10, p. 24) *by* Eastwell Eveno 664.

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[1] Champion Prize of £10 10*s.* given by the Devon Cattle Breeders' Society for the best Bull in Classes 177 and 178, entered or eligible for entry in the Devon Herd Book.

[2] Champion Prize of £10 10*s.* given by the Devon Cattle Breeders' Society for the best Cow or Heifer in Classes 179 to 182, entered or eligible for entry in the Devon Herd Book.

Class 189.—*Longhorn Cows or Heifers (in-milk), born in or before* 1921.

1504 I. (£15.)—J. W. Swinnerton-Weston, Over Whitacre House, Birmingham, for **Cupid** (Vol. 11, p. 16), red, brindle and white, born Feb. 17, 1917, calved Dec. 23, 1923, bred by F. J. Mayo, Friar Waddon, Dorchester; *s.* Eastwell Elector 656, *d.* Carnation *by* Lord Waddon 596.

Class 190.—*Longhorn Heifers, born in* 1922 *or* 1923.[1]

1505 I. (£15.)—J. W. Swinnerton-Weston, Over Whitacre House, Birmingham, for **Whitacre Nellie 6th**, red and white, born April 7, 1922; *s.* Waddon Doctor 839, *d.* Whitacre Nellie (Vol. 10, p. 30) *by* Whitacre Perfection 718.

Red Polls.

Class 191.—*Red Poll Bulls, born in or before* 1921.

1508 I. (£15, & Champion.[2])—Sir Albert E. Bowen, Bart., Culworth, Sharnbrook, Beds, for **Hatton Fabulist** 11985, born Jan. 14, 1920, bred by J. P. Arkwright, Hatton, Warwick; *s.* Sudbourne Major 11076, *d.* Hatton Fable 24035 *by* Acton Hussar 9881.

1509 II. (£10.)—Colonel Charles Brook, Kinmount, Annan, N.B., for **Colworth Speculation** 11110, born Dec. 6, 1916, bred by Sir A. E. Bowen, Bart., Culworth, Sharnbrook; *s.* Colworth Prince Charming 10713, *d.* Lowther Chrysofrase 23090 *by* Letton Vanity Davyson 2nd 10050.

1510 III. (£5.)—Lt.-Col. Sir Merrik R. Burrell, Bart., C.B.E., Knepp Castle, Horsham, for **Knepp Crown** 11162, born July 20, 1916; *s.* Sudbourne Crown 10803, *d.* Plumstead Prudence 24212 *by* Battle Axe 10142.

1506 R. N.—His Majesty the King, Sandringham, Norfolk, for **Royal Crimson.**

Class 192.—*Red Poll Bulls, born in* 1922.

1517 I. (£15, & R. N. for Champion.[2])—Eric C. Lindsay, Annvale House, Keady, Co. Armagh, for **Landwade Challenger** 12709, born Jan. 30; *s.* Marham Florin 11732, *d.* Framlingham Chance 27678 *by* Sudbourne Crossbow 10928.

1518 II. (£10.)—Major G. C. Nevile, Horstead Hall, Norwich, for **Horstead Commodore** 12269, born May 2; *s.* Horsted Artaxerxes 11693, *d.* Shotford Lady Mary 25872 *by* Shotford Alert 10488.

1520 III. (£5.)—Lord Wavertree, Horsley Hall, Gresford, North Wales, for **Ashmoor Jocund** 12499, born Jan. 23, bred by A. Carlyle Smith, Sutton Hall, Woodbridge; *s.* Ashmoor Pearson 11525, *d.* Ashmoor Joan 23386 *by* Dax 9567.

1514 R. N.—Sir Albert E. Bowen, Bart., Culworth, Sharnbrook, for **Culworth Brutus.**

Class 193.—*Red Poll Bulls, born in* 1923.

1528 I. (£15.)—A. Carlyle Smith, Sutton Hall, Woodbridge, for **Ashmoor Flavius**, born Jan. 29; *s.* Davyson 363rd 11926, *d.* Ashmoor Float 26021 *by* Davyson 265th 9230.

1527 II. (£10.)—Felix W. Leach, Meddler Stud, Kennett, Newmarket, for **Meddler Herdsman**, born Feb. 26; *s.* Basildon Roadman 11559, *d.* Meddler Mayflower 27135 *by* Hatchfield Royal Prince 10730.

1529 III. (£5.)—A. Carlyle Smith, for **Ashmoor Parvenu**, born Jan. 21; *s.* Davyson 363rd 11926, *d.* Ashmoor Peerless 22422 *by* Davyson 265th 9230.

1525 IV. (£4.)—Thomas Brown & Son, Marham Hall, King's Lynn, for **Marham Patrician**, born Jan. 21; *s.* Ghurka 10995, *d.* Shardeloes Pauline P. 1 26471 *by* David 10974.

1522 R. N.—Lt.-Col. R. C. Batt, C.B.E., M.V.O., Gresham Hall, Norwich, for **Gresham Mainstay.**

Class 194.—*Red Poll Cows or Heifers (in-milk), born in or before* 1921.

1534 I. (£15, & Champion.[3])—H. Munro Cautley, Neutral Farm, Butley, Tunstall, for **Royal Mavis** 30347, born Jan. 26, 1921, calved Jan. 26, 1924, bred by His Majesty the King, Sandringham; *s.* Royal Sunshine 11452, *d.* Lady Merle 25745 *by* Honingham Alcester 10424.

1546 II. (£10, & R. N. for Champion.[3])—David Trembath, Trelawne, Lancaster Gardens, Clacton-on-Sea, for **Tendring Floss 29th** 27326, born Oct. 1, 1916, calved March 30, 1924, bred by Sir J. T. Rowley, Holbecks Park, Hadleigh, Suffolk; *s.* Rendlesham Hector 10653, *d.* Tendring Floss 10th 22558 *by* Combatant 9550.

1545 III. (£5.)—S. Scrimgeour, Wissett Hall, Halesworth, for **Sotterley Winsome** 28233, born Jan. 19, 1917, calved April 30, 1924, bred by the late Major Miles Barne, Sotterley Park, Wrentham; *s.* Marham Hermit 10622, *d.* Sotterley Winnie 21975 *by* Sotterley Ruby 9744.

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[1] Prizes given by the Longhorn Cattle Society.

[2] Champion Prize of £5 given by the Red Poll Cattle Society for the best Bull in Classes 191 to 193.

[3] Champion Prize of £5 given by the Red Poll Cattle Society for the best Cow or Heifer in Classes 194 to 196.

1535 IV. (£4.)—S. W. COPLEY, Deacon's Hill, Elstree, Herts, for **Shotford Star Duchess 140** 29621, born Jan. 19, 1920, calved June 13, 1924, bred by J. B. Dimmock, Shotford Hall, Harleston; *s.* Shotford Davyson 11462, *d.* Star Duchess 26th 22812 *by* Shotford Nelson 9742.

1532 V. (£3.)—SIR ALBERT E. BOWEN, BART., Culworth, Sharnbrook, Beds, for **Sudbourne Belge** 26532, born Dec. 1, 1917, calved Jan. 3, 1924, bred by the late Kenneth Clark, Sudbourne, Orford; *s.* Hermits Ruby 10873, *d.* Sudbourne Belgravia 24358 *by* Acton Crowfoot 9987.

1533 R. N.—THOMAS BROWN & SON, Marham Hall, King's Lynn, for **Marham Jewel B 6.**

Class 195.—*Red Poll Heifers, born in* 1922.

1556 I. (£15.)—F. B. RYDER, Langham Hall, Blakeney, Norfolk, for **Blakeney Molly** 30757, born Aug. 20; *s.* Sudbourne Credo 11489, *d.* Ickworth Molly 27882 *by* Sudbourne Commander 10922.

1550 II. (£10.) THOMAS BROWN & SON, Marham Hall, King's Lynn, for **Marham Pasture** 31441, born Jan. 20; *s.* Marham Panther 11412, *d.* Shardeloes Pauline P 1 26471 *by* David 10974.

1557 III. (£5.)—A. CARLYLE SMITH, Sutton Hall, Woodbridge, for **White Hill Berry** 31874, born March 14, bred by Mrs. R. M. Foot, White Hill, Berkhamsted; *s.* Sudbourne Hector 11224, *d.* Sudbourne Red Berry 25979 *by* Honington Aldeburgh 3rd 10585.

1549 IV. (£4.)—P. A. BAYMAN, Letheringham Abbey, Wickham Market, for **Marham Amazon** 31438, born Jan. 19, bred by Thomas Brown & Son, Marham Hall, King's Lynn; *s.* Marham Dauntless 11031, *d.* Marham Amber 27125 *by* Kerrison Surprise 10880.

1554 R. N.—MRS. R. M. FOOT, White Hill, Berkhamsted, for **White Hill Dahlia.**

Class 196.—*Red Poll Heifers, born in* 1923.

1565 I. (£15.)—P. A. BAYMAN, Letheringham Abbey, Wickham Market, for **Falstaff Stella,** born Feb. 23, bred by the Ipswich Industrial Co-operative Society, Ltd., Ipswich; *s.* Aspall Osborne 11539, *d.* Henham Stella 25680 *by* Redgrave Royal 10350.

1579 II. (£10.)—A. CARLYLE SMITH, Sutton Hall, Woodbridge, for **Ashmoor Berry,** born Jan. 1; *s.* Aspall Eros 6th 11875, *d.* Ashmoor Bertha 28448 *by* Ashmoor Pearson 11525.

1561 III. (£5.)—J. P. ARKWRIGHT, Hatton House, Warwick, for **Hay Fay,** born March 11; *s.* Ashmoor Sir Richard 11872, *d.* Hatton Fable 24035 *by* Acton Hussar 9881.

1558 IV. (£4.)—HIS MAJESTY THE KING, Sandringham, Norfolk, for **Royal Hazel,** born Feb. 20; *s.* Easton Autocrat 11624, *d.* Honest Hebe 24635 *by* Sedgemere Rufus 10227.

1562 V. (£3.)—E. BARRACLOUGH, Ramsey Tyrrel, Ingatestone, for **Ramsey Lass,** born April 7; *s.* Sudbourne Albion 11064, *d.* Charming Lass 24484 *by* Red David 10069.

1576 R. N.—MINISTRY OF AGRICULTURE ESTATE, Methwold, Norfolk, for **Methwold Dearie.**

Blue Albions.

Class 197.—*Blue Albion Bulls, born in or before* 1921.

1585 I. (£15.)—CAPTAIN A. V. MILTON, Grasmere, Birstwith, Harrogate, for **Bradbourne Goalkeeper 2nd,** born Nov. 28, 1921, bred by A. Trafford, Bradbourne, Ashbourne; *s.* Bradbourne Goalkeeper 1st 31, *d.* Bradbourne Elizabeth 168.

1581 II. (£10.)—GEORGE W. AXE, Pool Field, Loxley, Uttoxeter, for **Bank Champion,** born July 28, 1921; *s.* Bank Baron 1, *d.* Bank Marion 68.

1586 III. (£5.)—G. B. MORTEN, Brown Hill Farm, Buxton, for **Bradbourne Goalkeeper** 31, bred by A. Trafford, Bradbourne, Ashbourne.

1584 R. N.—A. T. GREENSLADE, Little Walden Park, Saffron Walden, for **Destiny.**

Class 198.—*Blue Albion Bulls, born in* 1922.[1]

1591 I. (£15.)—PERCY DOBSON, Ridgwardine, Market Drayton, for **Elton Monarch,** born Aug. 24, bred by J. Dakin, Elton, Matlock; *s.* Bank Baron 1, *d.* Elton Lilac 3.

1594 II. (£10.)—W. H. HOLDCROFT, Holly Grove, Norton-in-Hales, Market Drayton, for **Bearstone Topper** 209, born Oct. 26, bred by the late D. Eardley, Bearstone, Market Drayton; *s.* Mountain Wildman 85, *d.* Bearstone Rachael 2028.

1595 III. (£5.)—G. B. MORTEN, Brown Hill Farm, Buxton, for **Fernilee Fearless,** born April 28; *s.* Bradbourne Goalkeeper 31, *d.* Bradbourne Princess 982.

1590 IV. (£4.)—C. H. CAPON, Waterend House, Wheathampstead, Herts, for **Waterend Firstoval,** born Sept. 14; *s.* Bradbourne Goalkeeper, *d.* Bradbourne Mollie.

1589 R. N.—GEORGE W. AXE, Pool Field, Loxley, Uttoxeter, for **Bramshall Quality.**

Class 199.—*Blue Albion Bulls, born in* 1923.[1]

1604 I. (£15.)—LT.-COL. W. E. HARRISON, O.B.E., Wychnor Park, Burton-on-Trent, for **Barton Greatheart,** born Jan. 31; *s.* Bradbourne Monarch, *d.* Bradbourne Sweetheart.

1600 II. (£10.)—C. H. CAPON, Waterend House, Wheathampstead, Herts, for **Waterend Champion,** born Feb. 10; *s.* Hurdlow Champion 61, *d.* Hurdlow Primrose.

1601 III. (£5.)—ARNOLD GILLETT, Ridgewood, Chorley, Lancs., for **Ridgewood Blue Bank,** born Aug. 31; *s.* England's Glory, *d.* Ridgewood Bank.

1602 IV. (£4.)—W. E. GLOVER, Snarestone, Burton-on-Trent, for **Snarestone Count,** born May 18; *s.* Mountain Count, *d.* Snarestone Duchess.

1610 V. (£3.)—RANDOLPH TORY, Charisworth Manor, Blandford, for **Charisworth Searchlight,** born Feb. 24; *s.* Bank Romeo 19, *d.* Charisworth Crimple 1114.

1603 R. N.—A. T. GREENSLADE, Little Walden Park, Saffron Walden, for **Walden Destiny.**

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[1] Prizes, except Fourth and Fifth, given by the Blue Albion Cattle Society.

Class 200.—*Blue Albion Cows or Heifers (in-milk), born in or before* 1921.

1617 I. (£15.)—T. H. SWIRE & SONS, Bellaport and Mount Farms, Market Drayton, for **Mount Sweetheart**, age and breeder unknown, calved May 3, 1924.

1614 II. (£10.)—CAPTAIN A. V. MILTON, Grasmere, Birstwith, Harrogate, for **Megdale Cowslip** 1250, born in Nov. 1919, calved.

1616 III. (£5.)—T. H. SWIRE & SONS, for **Mount Kitty**, age and breeder unknown, calved May 7, 1924.

1615 R. N.—FRANCIS C. STEVENSON, The Manor House, Swepstone, Leicester, for **Swepstone Nonpareil.**

Class 201.—*Blue Albion Heifers, born in* 1922.

1622 I. (£15.)—LT.-COL. W. E. HARRISON, O.B.E., Wychnor Park, Burton-on-Trent, for **Thorpe Missie**, bred by F. W. Smith, Thorpe Green, Thorpe, Ashbourne.

1620 II. (£10.)—ARNOLD GILLETT, Ridgewood, Chorley, Lancs, for **Bradbourne Vivian 2nd**, born Feb. 6, bred by Arthur Trafford, Bradbourne, Ashbourne ; *s.* Bradbourne Dairyman, *d.* Bradbourne Vivian.

1619 III. (£5.)—ARNOLD GILLETT, for **Bradbourne Beauty 2nd**, born Sept. 6, bred by Arthur Trafford, Bradbourne, Ashbourne ; *s.* Bradbourne Champion, *d.* Bradbourne Beauty.

1621 IV. (£4.)—LT.-COL. W. E. HARRISON, O.B.E., for **Norton Fruitful**, born April 13, bred by S. H. Swire, Norton Wood Farm, Market Drayton.

1626 R. N.—WILFRED L. STEEL, Ranton Abbey, Haughton, Stafford, for **Ranton Victrix.**

Class 202.—*Blue Albion Heifers, born in* 1923.[1]

1633 I. (£15.)—LEONARD TORY, Turnworth, Blandford, for **Turnworth Carnation**, born May 1 ; *s.* Bank Romeo 19, *d.* Turnworth Harding.

1636 II. (£10.)—JOHN WILLIAM TOWLER, Wadlands Hall, Farsley, Leeds, for **Norton Melody 2nd**, born Jan. 1, bred by S. Swire, Norton-in-Hales, Salop ; *s.* Mountain Wildman 85, *d.* Norton Melody 5444.

1630 III. (£5.)—C. H. CAPON, Waterend House, Wheathampstead, Herts, for **Waterend Daisy**, born March 20 ; *s.* Bank Count, *d.* Bradbourne Constance.

1634 R. N.—RANDOLPH TORY, Charisworth Manor, Blandford, for **Charisworth Daisy 2nd.**

British Friesians.

Class 203.—*British Friesian Bulls, born in or before* 1921.

1640 I. (£15, & Champion.[2])—GEORGE T. EATON, Thurston Hall, Framfield, Sussex, for **Kirkhill Dorin** 10045, born March 26, 1918, bred by Dr. William Sinclair, Loirston, Nigg, Aberdeen ; *s.* Kirkhill (imported) Karel 2nd 4051, *d.* Kirkhill Queen 9390 *by* Colton Queen's Own 97.

1644 II. (£10.)—DAVID MOSELEY, Smithy Farm, Buglawton, Congleton, for **Clockhouse King Akrin** 11321 P.I., born Jan. 22, 1919, bred by Trevor Williams, Dromenagh, Iver Heath, Bucks ; *s.* Clockhouse Rinlod 7513 P.I., *d.* Garton (imported) Akke 6th 17794 *by* Albert 2nd 5611 F.R.S.

1645 III. (£5.)—F. & T. NEAME, Macknade, Faversham, for **Hache Cerbert Viking** 17107 P.I., born Feb. 5, 1921, bred by the Hache Herd, Muntham Court, Worthing ; *s.* Hedges Second Series 6427 P.I., *d.* Brooklands (imported) Sietske 4th 17052 *by* Bertus 5935 F.R.S.

1639 IV. (£4.)—SETON DE WINTON, Franks, Upminster, Essex, for **Hache Cerynt Vulcan** 17111 P.I., born April 14, 1921, bred by Hache Herd, Muntham, Worthing ; *s.* Hedges Second Series 6427 P.I., *d.* Brooklands Fryleigh 27724 P.I. *by* Kingswood (imported) Ynte 4047.

1641 R. N.—THOMAS FOSTER, Trees Dairy Farm, Pannal, Harrogate, for **Rossett Lascelles.**
H. C.—1643.

Class 204.—*British Friesian Bulls, born on or between January* 1 *and June* 30, 1922.

1650 I. (£15, & R. N. for Champion.[2])—C. J. MARTIN, Great Totease Farm, Buxted, Sussex, for **Thurston Karel President** 21581, born Jan. 1, bred by George T. Eaton, Thurston Hall, Framfield, Sussex ; *s.* Kirkhill (imported) Karel 2nd 4051, *d.* Foxlease Noel 17778 *by* Wigginton Pippin 2235.

1651 II. (£10.)—SYDNEY PYMAN, Pigeon House, Ross-on-Wye, Herefordshire, for **Thurston Karel Khedive** 21577, born Feb. 11, bred by George T. Eaton, Thurston Hall, Framfield, Sussex ; *s.* Kirkhill (imported) Karel 2nd 4051, *d.* Buckingham Berry 3rd 23754 *by* Bendrose Boss 2351.

1652 III. (£5.)—C. C. SCHOLEFIELD, Willow Farm, Tadcaster, for **Austin Vic Cesar** 19211, born Jan. 1 ; *s.* Dunninald (imported) Cesar 2nd 3813, *d.* Austin Gay Kitty 31746 *by* Golf Botermijn 2nd 6327 P.I.

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[1] Prizes, except Fourth and Fifth, given by the Blue Albion Cattle Society.

[2] Champion Prize of £5 given by the British Friesian Cattle Society for the best Bull in Classes 203 to 207.

Class 205.—*British Friesian Bulls, born on or between July* 1 *and December* 31, 1922.

1653 **I.** (£15.)—John Bromet, Golf Links Farm, Tadcaster, for **Northdean Hollander 2nd** 21079 P.I., born Aug. 11, bred by G. Holt Thomas, Northdean House, Hughenden, High Wycombe; *s.* Dell Hollander 7655 P.I., *d.* Moordale (imported) Meibloem 18708 *by* Max 5899 F.R.S.

1654 **II.** (£10.)—Mrs. S. Johnson, The Gadlas, Ellesmere, for **Hamels Roland** 20227, born Oct. 16, bred by Ethelbert Furness, Hamels Park, Buntingford; *s.* Seaton Roland 10593 P.I., *d.* Dunninald Daphne 14532 *by* Dunninald Agility 1165.

Class 206.—*British Friesian Bulls, born on or between January* 1 *and June* 30, 1923.[1]

1660 **I.** (£15, & Champion.[2])—Ethelbert Furness, Hamels Park, Buntingford, for **Hamels Froukje's Roland**, P.I., born Jan. 11; *s.* Seaton Roland 10593 P.I., *d.* Hedges (imported) Froukje 3rd 18050 *by* Ceres 4497 F.R.S.

1659 **II.** (£10.)—Captain John Christie, Glyndebourne, Ringmer, Lewes, for **Glyndebourne Murkarel**, born Jan. 7; *s.* Reddown (imported) Murk 4377, *d.* Kirkhill Lady Nellie 29476 *by* Kirkhill (imported) Karel 2nd 4051.

1662 **III.** (£5.)—Vyvian G. Harmsworth, Valley Holme, Horsted Keynes, Sussex, for **Thurston Karel Sunstar**, born Feb. 4, bred by George T. Eaton, Thurston Hall, Framfield, Sussex; *s.* Kirkhill (imported) Karel 2nd 4051, *d.* Foxlease Noel 17778 *by* Wigginton Pippin 2235.

1661 **IV.** (£4.)—Frank Griffiths, Tyddyn Farm, Mold, for **Tyddyn Mietje's Flashlight**, born April 29; *s.* Mayhill Victor 10227, *d.* Moy Wildflower 40904 *by* Colton Flashlight 4977.

Class 207.—*British Friesian Bulls, born on or between July* 1 *and December* 31, 1923.[1]

1674 **I.** (£15, & R. N. for Champion.[2])—Mrs. Putnam, Home Farm, Farringdon, Exeter, for **Haydon Mazeppa** P.I., born Sept. 9; *s.* Knebworth (imported 1922) Ceres 20607, *d.* Haydon Favourite 53404 P.I., *by* Ongar (imported) Vic Klaas 4281.

1677 **II.** (£10.)—W. & R. Wallace, Swangleys Farm, Knebworth Station, Herts, for **Knebworth Ceres Champion**, born Aug. 13; *s.* Knebworth (imported 1922) Ceres 2nd 20607, *d.* Reddown Sweep 4th 41610 *by* Gorstage (imported) Mietje's Victor 3939.

1670 **III.** (£5.)—Stuart Heaton, Iken, Tunstall, Suffolk, for **Iken Bertus 12th**, born July 17; *s.* Terling (imported) Vic Bertus 4541, *d.* Sudbourne White Heather 42140 *by* Golf (imported) Botermijn 3919.

1668 **IV.** (£4.)—George T. Eaton, Thurston Hall, Framfield, Sussex, for **Thurston Karel Ranger**, born July 28; *s.* Kirkhill (imported) Karel 2nd 4051, *d.* Horton Roe Deer 46098 *by* Commieston (imported) Roland 3721.

1671 **V.** (£3.)—G. Holt Thomas, Northdean House, Hughenden, High Wycombe, for **Northdean Elector**, born Nov. 2; *s.* Dell Hollander 7655 P.I., *d.* Beccles Dorawijk 27410 *by* Beccles (imported) Lodewijk 3501.

1673 **R. N.**—Mrs. S. Johnson, The Gadlas, Ellesmere, for **Gadlas Stately's Viking.**

H. C.—1676. C.—1678.

Class 208.—*British Friesian Cows (in-milk), born in or before* 1920.

1690 **I.** (£15, & Champion.[3])—Edward Hollingworth, C.B.E., Moordale, Dobcross, Yorks, for **Northdean Meibloem** 47738 P.I., born June 25, 1920, calved May 5, 1924, bred by G. Holt Thomas, Northdean House, Hughenden, High Wycombe; *s.* Dell Hollander 7655 P.I., *d.* Moordale (imported) Meibloem 18708 *by* Max 5899 F.R.S.

1680 **II.** (£10, & R. N. for Champion.[3])—Captain John Christie, Glyndebourne, Ringmer, Lewes, for **Terling Breeze 8th** 36182, born Aug. 11, 1918, calved June 14, 1924, bred by Lord Rayleigh, Terling Place, Chelmsford; *s.* Lavenham (imported) Gysbrecht 4077, *d.* Terling Breeze 6th 26718 *by* Terling (imported) Vic Bertus 4541.

1694 **III.** (£5.)—John Horridge, Plas Llanfair, Llanfair P.G., Anglesey, for **Chaddesley Peggy** 37788, born March 6, 1919, calved May 18, 1924, bred by J. H. Bean, Chaddesley Corbett, Kidderminster; *s.* Wychnor (imported) Yme 4709, *d.* Tredegar Peggy 16380 *by* Tredegar Courage 779.

1684 **IV.** (£4.)—Ethelbert Furness, Hamels Park, Buntingford, for **Hamels Ympca** 39316, born Oct. 5, 1919, calved April 30, 1924; *s.* Dunninald Gaatsomairschaap 6175 P.I., *d.* Dunninald Cecile 7522 *by* Dunninald Agility 1165.

1679 **V.** (£3.)—A. & J. Brown, Haydon Hill, Aylesbury, for **Hedges Bles Julian** 39508, born Dec. 10, 1919, calved April 4, 1924; *s.* Petygards (imported) Bles Albert 4321, *d.* Hedges Queen Juliana 15024 *by* Hedges Champion of Champions 271.

1692 **R. N.**—G. Holt Thomas, Northdean House, Hughenden, High Wycombe, for **Colton Sunray.**

H. C.—1681. C.—1704, 1709.

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[1] Prizes, except Fourth and Fifth, given by the British Friesian Cattle Society.

[2] The "Wobaston" Silver Challenge Cup, value £50, given through the British Friesian Cattle Society, for the best Bull, bred by Exhibitor, in Classes 203 to 207.

[3] Champion Prize of £5 given by the British Friesian Cattle Society for the best Cow or Heifer in Classes 208 to 213.

Class 209.—*British Friesian Heifers (in-milk), born in* 1921.[1]

1714 I. (£15.)—Major B. M. Edwards, Hardingham Hall, Hingham, Norfolk, for **Blenheim Bramrinschaap** 50756, born Sept. 9, calved Jan. 4, 1924, bred by the Duke of Marlborough, K.G., Blenheim Palace, Woodstock; *s.* Dunninald Gaatsomairschaap 6175 P.I., *d.* Clockhouse Bramrin 37852 *by* Clockhouse Rinlod 7513 P.I.

1718 II. (£10.)—David Moseley, Smithy Farm, Buglawton, Congleton, for **Northdean Bonnie Annie** 55600, born March 21, calved March 20, 1924, bred by G. Holt Thomas, Northdean House, Hughenden, High Wycombe; *s.* Dell Hollander 7655 P.I., *d.* Hedges Bonnie Annie 1698 *by* Hedges Hawkrigg Duke 293.

1711 III. (£5.)—A. & J. Brown, Haydon Hill, Aylesbury, for **Hedges Peggy** 53480, born Sept. 13, calved June 13, 1924; *s.* Petygards (imported) Bles Albert 4321, *d.* Moss Peggy 25790 *by* Moss (imported) Adema 49th 4223.

1713 IV. (£4.)—George T. Eaton, Thurston Hall, Framfield, Sussex, for **Thurston Karel Daffodil** 57526, born Jan. 20, calved March 8, 1924; *s.* Kirkhill (imported) Karel 2nd 4051, *d.* Blickling Cherry 5786.

1715 R. N.—W. H. R. Gilbert, The Cottage, Aston Flamville, Hinckley, for **Trentham Bluebell.**

H. C.—1712.

Class 210.—*British Friesian Heifers, born on or between January* 1 *and June* 30, 1922.

1726 I. (£15.)—Ethelbert Furness, Hamels Park, Buntingford, for **Hamels Froukje's Liebje** 62146 P.I., born March 7; *s.* Dunninald Gaatsomairschaap 6175 P.I., *d.* Hedges (imported) Froukje 3rd 18050 *by* Ceres 4497 F.R.S.

1730 II. (£10.)—G. Holt Thomas, Northdean House, Hughenden, High Wycombe, for **Northdean Wilhelminchen 2nd** 64810, born March 7; *s.* Dell Hollander 7655 P.I., *d.* Wigginton Wilhelminchen 23154 *by* Wigginton Laird 2227.

1725 III. (£5.)—Ethelbert Furness, for **Hamels Empress** 62124, born March 26; *s.* Dunninald Gaatsomairschaap 6175 P.I., *d.* Pomona Queen 26192 *by* Cradlehall (imported) Hollander 2nd 3737.

1734 IV. (£4.)—Bertram Parkinson, Creskeld Hall, Arthington, Leeds, for **Thurston Joyinrijpschaap** 66838 P.I., born Jan. 15, bred by George T. Eaton, Thurston Hall, Framfield, Sussex; *s.* Seaton Roland 10593 P.I., *d.* Dunninald Joyinrijpschaap 38560 P.I. *by* Dunninald (imported) Cesar 2nd 3813.

1727 V. (£3.)—W. H. R. Gilbert, The Cottage, Aston Flamville, Hinckley, for **Outwoods Princess** 65058, born March 13, bred by E. Wheatley, The Outwoods, Burbage, Hinckley; *s.* Sutton Viking 12777, *d.* Terling Mercy 4th 22906 *by* Fingringhoe Hector 1231.

1736 R. N.—W. & R. Wallace, Swangleys Farm, Knebworth Station, for **Knebworth Ynte's Lilian 3rd.**

H. C.—1724.

Class 211.—*British Friesian Heifers, born on or between July* 1 *and December* 31, 1922.

1739 I. (£15.)—George T. Eaton, Thurston Hall, Framfield, Sussex, for **Thurston Karel Wallflower 2nd** 66890, born July 5; *s.* Kirkhill (imported) Karel 2nd 4051, *d.* Knebworth Maria 2nd 9490 *by* Knebworth Conqueror 361.

1738 II. (£10.)—A. & J. Brown, Haydon Hill, Aylesbury, for **Hedges John's Peggy** 62418, born Aug. 28; *s.* Wigginton (imported) Johan 4637, *d.* Moss Peggy 25790 *by* Moss (imported) Adema 49th 4223.

1744 III. (£5.)—G. Holt Thomas, Northdean House, Hughenden, High Wycombe, for **Northdean Meibloem 2nd** 64796 P.I., born Nov. 5; *s.* Terling (imported) Vic Bertus 4541, *d.* Northdean Meibloem 47738 P.I. *by* Dell Hollander 7655 P.I.

1745 IV. (£4.)—David Moseley, Smithy Farm, Buglawton, Congleton, for **Thurston Karel Eve 2nd** 66852, born Sept. 25, bred by George T. Eaton, Thurston Hall, Framfield; *s.* Kirkhill (imported) Karel 2nd 4051, *d.* Thurston Eve 42436 *by* Petygards (imported) Bles Albert 4321.

1741 R. N.—W. H. R. Gilbert, The Cottage, Aston Flamville, Hinckley, for **Wychnor Bluebell 3rd.**

H. C.—1737.

Class 212.—*British Friesian Heifers, born on or between January* 1 *and June* 30, 1923.[1]

1751 I. (£15.)—George T. Eaton, Thurston Hall, Framfield, Sussex, for **Thurston Karel Verbena 2nd,** born May 20; *s.* Kirkhill (imported) Karel 2nd 4051, *d.* Petygards Ciros 26080 *by* Petygards (imported) Bles Albert 4321.

1768 II. (£10.)—Mrs. Putnam, Home Farm, Farringdon, Exeter, for **Haydon Stella,** born April 22; *s.* Haydon (imported 1922) Pilot 20279, *d.* Haydon Cherry Blossom 39440 *by* Routh Dutchman 6939 P.I.

1750 III. (£5.)—George T. Eaton, for **Thurston Karel Joyinrijpschaap 2nd** P.I., born Jan. 7; *s.* Kirkhill (imported) Karel 2nd 4051, *d.* Dunninald Joyinrijpschaap 38560 P.I. *by* Dunninald (imported) Cesar 2nd 3813.

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[1] Prizes, except Fourth and Fifth, given by the British Friesian Cattle Society.

1752 IV. (£4.)—Ethelbert Furness, Hamels Park, Buntingford, for **Hamels First Bloom**, born Jan. 2; *s.* Seaton Roland 10593 P.I., *d.* Sudbourne Blossom 42130 *by* Wigginton Johan 7165 P.I.

1748 V. (£3.)—A. & J. Brown, Haydon Hill, Aylesbury, for **Hedges Johan's Violet**, born Feb. 21; *s.* Wigginton (imported) Johan 4637, *d.* Hedges Albert's Violet 39506 *by* Petygards (imported) Bles Albert 4321.

1770 R. N.—Lord Rayleigh, Terling Place, Chelmsford, for **Terling Collona.**

H. C.—1753, 1766. C.—1757, 1777.

Class 213.—*British Friesian Heifers, born on or between July* 1 *and December* 31, 1923.[1]

1786 I. (£15.)—George T. Eaton, Thurston Hall, Framfield, Sussex, for **Thurston Karel Daisy 2nd**, born July 1; *s.* Kirkhill (imported) Karel 2nd 4051, *d.* Colton Unique 14336 *by* Colton Puritan 95.

1796 II. (£10.)—Friend Sykes, Richings Park, Colnbrook, Bucks, for **Richings Beatty's Bride**, born Aug. 11; *s.* Kingswood (imported 1922) First Beatty 20571, *d.* Kingswood Ceres Bride 39926 *by* Hedges Second Series 6427 P.I.

1790 III. (£5.)—G. Holt Thomas, Northdean House, Hughenden, High Wycombe, for **Northdean Barbara P.I.**, born Sept. 15; *s.* Northdean (imported 1922) Marthus Beatty 21081, *d.* Clockhouse (imported 1922) Barbara 60100 *by* Nels Rust General Burger 817 F.H.B., S.A.

1791 IV. (£4.)—G. Holt Thomas, for **Northdean Ceres Myrtle 4th**, born Sept. 23; *s.* Northdean (imported 1922) Marthus Beatty 21081, *d.* Northdean Ceres Myrtle 2nd 55602 *by* Dell Hollander 7655 P.I.

1788 V. (£3.)—Ethelbert Furness, Hamels Park, Buntingford, for **Hamels Familiarity**, born Aug. 26; *s.* Seaton Roland 10593 P.I., *d.* Hedges Familiar 2nd 33926 *by* Hedges (imported) Fokke 2nd 3993.

1792 R. N.—G. Holt Thomas, for **Wychnor Bluebell 4th.**

Challenge Cup [2] and Challenge Trophy.[3]—Ethelbert Furness.

R. N. for Challenge Cup [2] and R. N. for Challenge Trophy.[3]—George T. Eaton.

H. C.—1797, 1799. C.—1787, 1795.

Ayrshires.

Class 214.—*Ayrshire Bulls, born on or before September* 1, 1923.

1800 I. (£15.)—Thomas Barr, Hobsland, Monkton, Ayrshire, for **Caigton Here's Luck 22378**, born Feb. 8, 1922, bred by James B. Crawford, Caigton, Castle Douglas; *s.* Hobsland Lucky Star 19597, *d.* Caigton Pink 3rd A 221 *by* Chapmanton Snowflake 7150.

1802 II. (£10.)—James Howie, Hillhouse, Kilmarnock, for **Howie's Cherry Tree**, born March 5, 1923, bred by James Hodge, Friendlesshead, Mauchline; *s.* Thornhill Rector 19487, *d.* Friendlesshead Cherry Blossom 81665 *by* Howie's Eminent 16973.

Class 215a.—*Ayrshire Cows (in-milk), born on or before September* 1, 1920.

1807 I. (£15.)—Alexander Cochrane, Nether Craig, Kilmarnock, for **Dalpeddar Stella 68497**, born Oct. 31, 1919, calved June 24, 1924, bred by William Thomson, Dalpeddar, Sanquhar; *s.* Tower Lad 15758, *d.* Barr Spottie A 8004 *by* Burnside Lord Flashwood 13470.

1813 II. (£10.)—James Howie, Hillhouse, Kilmarnock, for **Friendlesshead Blossom 4th 40942**, born in April, 1913, calved June 3, 1924, bred by James Hodge, Friendlesshead, Mauchline; *s.* Craighead Guardsman 9578, *d.* Friendlesshead Blossom A 403 *by* Whitehall Fortune 5199.

1810 III. (£5.)—William Gibson, Walton Warren, Walton-on-Trent, Burton-on-Trent, for **Moorside Achillea 64592**, born May 23, 1918, calved June 2, 1924; *s.* Craighead Silver King 13875, *d.* Moorside Acacia 32527 *by* St. John 8053.

1811 IV. (£4.)—William Gibson, for **Moorside Amelia 64599**, born May 18, 1917, calved June 8, 1924; *s.* Craighead Silver King 13875, *d.* Auchincloigh Tibbie 26379 *by* Auchincloigh General 7592.

1805 R. N.—Thomas Barr, Hobsland, Monkton, Ayrshire, for **Hobsland Molly.**

Class 215b.—*Ayrshire Cows (in-calf), born on or before September* 1, 1920.

1814 I. (£15.)—James Howie, Hillhouse, Kilmarnock, for **Low Milton Cherry Blossom 76147**, born Feb. 15, 1918, bred by Thomas Logan, Low Milton, Maybole; *s.* Howie's Blockade 15275, *d.* Low Milton May Blossom 2nd 48690 *by* Low Milton Sir Percy 10922.

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[1] Prizes, except Fourth and Fifth, given by the British Friesian Cattle Society.

[2] Silver Challenge Cup, value Fifty Guineas, given through the British Friesian Cattle Society for the best group of three Cows or Heifers in Classes 208 to 213.

[3] Perpetual Bronze Challenge Trophy, value Fifty Guineas, given by the Friesland Cattle Breeders' Association for the best group of three British Friesian animals bred by Exhibitor in Classes 208 to 213.

Class. 216—*Ayrshire Cows or Heifers (in-milk or in-calf), born after September* 1, 1920.[1]

1818 I. (£15.)—ALEXANDER COCHRANE, Nether Craig, Kilmarnock, for **Camis-Eskan Mary 2nd 83157**, born Oct. 22, 1921, in-calf, bred by William Watt, Camis-Eskan, Helensburgh; *s.* Nether Craig Reserve 18372, *d.* Camis-Eskan Mary 60833 *by* Dalfibble Moneymaker 48657.

Guernseys.

N.B.—Unless otherwise stated the numbers refer to the English Guernsey Herd Book.

Class 217.—*Guernsey Bulls, born in or before* 1921.

1824 I. (£15, & Champion.[2])—MRS. F. H. T. JERVOISE, Herriard Park, Basingstoke, for **Bon Espoir Jolly 5332**, fawn and white, born Oct. 6, 1921, bred by James Le Page, Neuve Maison, Castel, Guernsey; *s.* Governor of Myrtle Place 5th 4337 P.S., R.G.A.S., *d.* Bon Espoir Emley 2nd 18275 P.S., R.G.A.S. *by* May Boy of Mont Plaisant 3862 P.S., R.G.A.S.

1827 II. (£10, & R. N. for Champion.[2])—SIR JAMES REMNANT, BART., M.P., The Grange, Hare Hatch, Twyford, Berks, for **Dene Sequel 3678**, fawn and white, born Dec. 10, 1918; *s.* Sequel's Victor 2nd 3591, *d.* Gwenda 4th 5820 *by* Milford Easter Gift 1228.

1826 III. (£5.)—LORD FITZWALTER, Goodnestone Park, Canterbury, for **Rose Lad of Goodnestone 3163**, fawn and white, born April 11, 1915, bred by P. Martin, Kenilworth; *s.* Itchen Rose Lad 2602, *d.* Itchen Pearl 8th 8116 *by* Moss Raider 1871.

1822 R. N.—A. CHESTER BEATTY, Calehill Park, Little Chart, Kent, for **Murrell Golden Cheer.**

H. C.—1828. C.—1825.

Class 218.—*Guernsey Bulls, born in* 1922.

1830 I. (£15.)—THE EARL OF HAREWOOD, Harewood House, Leeds, for **Gems Lad of the Gron 5259**, red and white, born Jan. 7, bred by J. A. Bourgaise, Le Gron, St. Saviours, Guernsey; *s.* Charmantes Boy 3rd 4389 P.S., R.G.A.S., *d.* Gems Pride of The Gron 19359 P.S., R.G.A.S. *by* Valentine's Honour of the Passée 3826.

1829 II. (£10.)—JOHN B. BODY, Hindhead Court, Surrey, for **Hindhead Governor 4842**, fawn and white, born Oct. 24; *s.* Governor 4th des Ruettes 3718, *d.* Rosey of Goodnestone 12343 *by* Gunner 3rd 2459.

Class 219.—*Guernsey Bulls, born in* 1923.[3]

1836 I. (£15.)—JOHN B. BODY, Hindhead Court, Surrey, for **Hindhead Governor 2nd 5038**, fawn and white, born May 28; *s.* Governor 4th des Ruettes 3718, *d.* Lynchmere Rosy 2nd 14575 *by* Roberts Boys Sequel 2496.

1838 II. (£10.)—LORD FITZWALTER, Goodnestone Park, Canterbury, for **Rose Lad of Goodnestone 7th 5232**, fawn and white, born Aug. 30; *s.* Rose Lad of Goodnestone 3163, *d.* Lady Muriel 2nd 12899 *by* Governor of the Barras 2966.

C.—1837.

Class 220.—*Guernsey Cows (in-milk), born in or before* 1919.

1846 I. (£15, & R. N. for Champion.[4])—WALTER DUNKELS, Fernhill Park, Windsor Forest, for **Starlight Broom 15836**, dark fawn and white, born April 20, 1919, calved March 6, 1924, bred by Mrs. Martineau, Broom Hall, Sunningdale, Berks; *s.* Hursts Freda Jewel 3543, *d.* Brittleware Starlight 27th 9868 *by* Brittleware Robin 2nd 2415.

1841 II. (£10.)—A. CHESTER BEATTY, Calehill Park, Little Chart, Kent, for **Chywoone Kerria 11915**, fawn and white, born April 16, 1916, calved April 29, 1924, bred by P. T. Chirgwin, Chywoone, Paul, Penzance, Cornwall; *s.* Chywoone Hector 2714, *d.* Chywoone Gladiolus 9349 *by* Ladock Dairy Boy 2048.

1842 III. (£5.)—A. CHESTER BEATTY, for **Lizette of St. Catherine 13718**, fawn and white, born June 20, 1918, calved June 7, 1924, bred by P. C. Robilliard, St. Catherine, St. Peter Port, Guernsey; *s.* Lively's Sailor Boy of Les Quartiers 3622 P.S., R.G.A.S., *d.* Maypole 6th 8582 P.S., R.G.A.S.

1848 IV. (£4.)—SIR JAMES REMNANT, BART., M.P., The Grange, Hare Hatch, Twyford, Berks, for **Dene Treacle 2nd 14230**, dark fawn and white, born March 31, 1919, calved May 31, 1924; *s.* Sequels Victor 2nd 3591, *d.* Dene Treacle 11248 *by* Dene Dandy 2720.

1843 R. N.—A. CHESTER BEATTY, for **Moss Rose of Duvaux.**

H. C.—1844. C.—1847.

Class 221.—*Guernsey Cows or Heifers (in-milk), born in* 1920 *or* 1921.[3]

1859 I. (£15, & Champion.[4])—MESSRS. C. NORMAN, Moor Place, Much Hadham, Herts, for **Hadham Marigold 4th 16540**, fawn and white, born March 17, 1921, calved June 4, 1924; *s.* Ladoc Prince Albert A.R.10 3350, *d.* Hadham Marigold 12099 *by* Hadham Goldseeker A.R.2 2766.

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[1] Prizes given by the Ayrshire Cattle Herd Book Society.

[2] Champion Prize of £5 given by the English Guernsey Cattle Society for the best Bull in Classes 217 to 219.

[3] Prizes given by the English Guernsey Cattle Society.

[4] Champion Prize of £5 given by the English Guernsey Cattle Society for the best Cow or Heifer in Classes 220 to 223.

1858 II. (£10.)—Mrs. F. H. T. Jervoise, Herriard Park, Basingstoke, for **Herriard Dora 2nd** 15440, fawn and white, born Sept. 11, 1920, calved April 20, 1924; *s.* Herriard Osseo's Replica 3726, *d.* Herriard Dora 13593 *by* Herriard du Foulon 3156.

1854 III. (£5.)—John B. Body, Hindhead Court, Surrey, for **Morland Lady Richmond** 16788, fawn and white, born Feb. 15, 1921, calved May 8, 1924, bred by G. F. Ferrand, Morland Hall, Alton, Hants; *s.* Slogan's Climax 4035, *d.* Richmond's Zoe of La Ruette 13845 *by* Ivy's Emblem 3804 P.S., R.G.A.S.

1853 R. N.—A. Chester Beatty, Calehill Park, Little Chart, Kent, for **Jenny's Princess.**

C.—1855.

Class 222.—*Guernsey Heifers, born in* 1922.

1864 I. (£15.)—Lord Fitzwalter, Goodnestone Park, Canterbury, for **Rosey of Goodnestone 14th** 18290, fawn and white, born Feb. 27; *s.* Sequels Slogan 2nd 4311, *d.* Rosey 11th 7456 *by* Roland of Seaview 10th 1621.

1862 II. (£10.)—Walter Dunkels, Fernhill Park, Windsor Forest, for **Dairymaid of Goodnestone 2nd** 17554, light fawn and white, born April 2, bred by Lord Fitzwalter, Goodnestone Park, Canterbury; *s.* Rose Lad of Goodnestone 3rd 4303, *d.* Dairymaid of Alderney 3rd 11227 *by* Golden Noble 6th 2753.

C.—1860, 1863.

Class 223.—*Guernsey Heifers, born in* 1923.

1871 I. (£15.)—Walter Dunkels, Fernhill Park, Windsor Forest, for **Fernhill Primrose** 18812, dark fawn and white, born May 20; *s.* Governor 6th des Ruettes 4613 P.S., R.G.A.S., *d.* Primrose 3rd of the Rales 18210 *by* Cyrenes Lad of the Rouvets 4252 P.S., R.G.A.S.

1875 II. (£10.)—Lord Fitzwalter, Goodnestone Park, Canterbury, for **Rosey of Goodnestone 18th** 19866, fawn and white, born May 15; *s.* Rose Lad of Goodnestone 3163, *d.* Rosey of Goodnestone 8th 14739 *by* Sequels Delight 2nd 3403.

1866 III. (£5.)—A. Chester Beatty, Calehill Park Little Chart, Kent, for **Calehill Peaceful** 18659, fawn and white, born Feb. 14; *s.* Clara's Slogan 4518 P.S., R.G.A.S., *d.* Peace. Poundstock 18145 *by* Lenore's Sequel of Vimiera 4247.

1868 R. N.—John B. Body, Hindhead Court, Surrey, for **Hindhead Polly 3rd.**

C.—1865.

Jerseys.

N.B.—In the Jersey Classes, the number inserted within brackets after the name of an anima indicates the number of such animal in the Island Herd Book. A number without brackets indicates that the animal is registered in the English Jersey Herd Book.

Class 224.—*Jersey Bulls, born in or before* 1921.

1884 I. (£15, & Champion.[1])—R. Bruce Ward, Godinton, Ashford, Kent, for **Canterbury Pilgrim** (Vol. 33, p. 148), broken colour, born April 9, 1921; *s.* Pilgrim 13699, *d.* Caper *by* Capsicum 10892.

1878 II. (£10, & R. N. for Champion.[1])—Mrs. Bertram Cater, Bentworth Lodge, Alton, Hants, for **Cupid** 13894, whole colour, born March 25, 1921, bred by Major the Hon. H. Pearson, Cowdray, Midhurst; *s.* Pioneer's Noble 12416, *d.* Roselle *by* Northcliffe 12728.

1883 III. (£5.)—T. Eustace Smith, Wormingford Grove, Wormingford, Essex, for **Danbury Majestic** 13901, whole colour, born Aug. 17, 1920, bred by Brig.-Gen. J. T. Wigan, C.B., Danbury, Essex; *s.* Red Ensign 13397, *d.* Mitylene *by* Topsy's Noble 10116.

1877 R. N.—R. W. Carson, Lea Hall, Hatfield Heath, Harlow, for **Lion of Lynn.**

H. C.—1876, 1882.

Class 225.—*Jersey Bulls, born in* 1922.

1890 I. (£15.)—R. Bruce Ward, Godinton, Ashford, Kent, for **My Pilgrim**, whole colour, born May 7; *s.* Pilgrim 13699, *d.* Mistress Mine (Vol. 32, p. 146) *by* Masterman of Oaklands 13020.

1888 II. (£10.)—J. H. N. Roberts, Weybeards Farm, Harefield, Middlesex, for **Stirling Cowslip** (Vol. 34, p. 126), whole colour, born May 27; *s.* General Cowslip 10960, *d.* Masterman's Pet *by* Masterman of Oaklands 13020.

1887 III. (£5.)—J. H. N. Roberts, for **Cowslip's You'll Do** (Vol. 34, p. 126), whole colour, born April 30; *s.* General Cowslip 10960, *d.* Quaintness *by* Kingsway 12041.

1886 R. N.—J. Pierpont Morgan, Wall House, Aldenham, Watford, for **Aldenham Sultan.**

H. C.—1885, 1889.

Class 226.—*Jersey Bulls, born in* 1923.

1904 I. (£15.)—R. Bruce Ward, Godinton, Ashford, Kent, for **Sir Laurel**, broken colour, born May 11; *s.* St. Louis, *d.* Evergreen (Vol. 31, p. 273) *by* Catillon's Prince 11639.

1894 II. (£10.)—George Cross, Smarts Hill House, Penshurst, Kent, for **Gloxalia's Penshurst Pilgrim**, whole colour, born May 18; *s.* Canterbury Pilgrim, *d.* Gloxalia 2nd *by* King Capsicum 12980.

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[1] Champion Prize of £5 given by the English Jersey Cattle Society for the best Bull in Classes 224 to 226.

1902 III. (£5.)—J. H. N. Roberts, Weybeards Farm, Harefield, Middlesex, for **Cowslip's Noble Boy**, whole colour, born May 4; *s.* General Cowslip 10960, *d.* Cascapeda (Vol. 32, p. 292) *by* Masterman of Oaklands 13020.

1906 IV. (£4.)—Brig.-General J. T. Wigan, C.B., C.M.G., D.S.O., Danbury Park, Chelmsford, for **Danbury Symphony**, whole colour, born Sept. 17; *s.* Danbury Majestic 13901, *d.* Harmony (Vol. 33, p. 337) *by* Monica's Pioneer 13035.

1891 V. (£3.)—Mrs. Oswald Ames, Blackdown, Upham, Southampton, for **Yellow Face**, broken colour, born April 3; *s.* Favorite Gamboge 14277, *d.* Brown Face *by* The Cid 12473.

1901 R. N.—J. H. N. Roberts, for **Jessy's General Cowslip.**

C.—1895.

Class 227.—*Jersey Cows (in-milk), born in or before* 1920.

1907 I. (£15, & Champion.[1])—Mrs. Oswald Ames, Blackdown, Upham, Southampton, for **Park Mayfire** (24673), whole fawn, born May 4, 1917, calved April 17, 1924, bred by P. Slous, Park Lodge, St. Heliers, Jersey; *s.* The Cid 12473, *d.* Firelight 2nd (12911) *by* Billy Bowsprit 8433.

1915 II. (£10, & R. N. for Champion.[1])—R. W. Carson, Lea Hall, Hatfield Heath, Harlow, for **Donna Ypres** (Vol. 30, p. 265), whole colour, born July 26, 1915, due to calve before the Show, bred by W. J. Labey, Grouville, Jersey; *s.* Fontaine's Oxford Lad 12003, *d.* Donna Victoria (19474) P.S.H.C. *by* Sigmond 11542.

1920 III. (£5.)—George Cross, Smarts Hill House, Penshurst, Kent, for **So Lady Like** (Vol. 31, p. 394), whole fawn, born May 22, 1917, calved April 17, 1924, bred by F. Le Masurier, St. Brelades, Jersey; *s.* Vale Lily's Lad 12785, *d.* So Lite (10739) F.S.C.

1916 IV. (£4.)—R. W. Carson, for **Lynn's Fern Lady 2nd** (Vol. 32, p. 381), whole colour, born April 30, 1917, calved June 13, 1924, bred by A. J. Richardson, St. Martins, Jersey; *s.* Golden Fern's Noble 10626, *d.* Lynn's June Lady 17496 *by* Fontaine's Oxford Lad 12003.

1937 V. (£3.)—L. E. Tubbs, The Priory, Stevenage, for **Oxlip** (Vol. 33, p. 397), whole colour, born July 23, 1919, calved April 30, 1924, bred by Dr. Watney, Buckhold, Pangbourne; *s.* Lord Primrose 12691, *d.* Gem's Maple *by* Violette's Gem 12178.

1940 R. N.—R. Bruce Ward, Godinton, Ashford, Kent, for **Evergreen.**

1911 Special.[2]—Grosvenor Berry, Mount Bures, Bures, Suffolk, for **Golden Raspberry.**

1944 R. N. for Special.[2]—R. Bruce Ward, for **Prometheus Queen.**

1935 Special.[3]—The Hon. Mrs. Murray Smith, Gumley Hall, Market Harborough, for **Lubenham May.**

1934 R. N. for Special.[3]—The Hon. Mrs. Murray Smith, for **Bayleaf's Violette.**

H. C.—1941. C.—1908, 1910, 1911, 1930, 1932.

Class 228.—*Jersey Heifers (in-milk), born in* 1921.

1956 I. (£15.)—J. H. N. Roberts, Weybeards Farm, Harefield, Middlesex, for **Lady Zara**, broken colour, born June 13, calved June 10, 1924, bred by J. de la Haye, jun., St. Ouens, Jersey; *s.* Jersey Volunteer 12664, *d.* Tidy Lady 14853 P.S.H.C. *by* Cato 7th 9183.

1960 II. (£10, & Special.[4])—Brig.-General J. T. Wigan, C.B., C.M.G., D.S.O., Danbury Park, Chelmsford, for **Danbury Tinkabelle**, whole colour, born May 16, calved April 25, 1924; *s.* Danbury Red King 13535, *d.* Topaz 2nd (Vol. 33, p. 445) *by* Cowslip's Pioneer 13226.

1949 III. (£5.)—George Cross, Smarts Hill House, Penshurst, Kent, for **Miss Etiquette** (Vol. 33, p. 122), whole fawn, born Jan. 2, calved March 30, 1924, bred by Mrs. Rudd, Felbridge Park Farm, East Grinstead; *s.* Fire King 12615, *d.* So Lady Like *by* Vale Lily's Lad.

1959 IV. (£4.)—R. Bruce Ward, Godinton, Ashford, Kent, for **Crystal Memory**, whole colour, born May 24, calved May 28, 1924, bred by R. W. Carson, Hatfield; *s.* Rosebay's Was Wanted 13107, *d.* Memory *by* Peary 14079.

1951 V. (£3.)—W. Vere Doughty, Ickleford Manor, Hitchin, for **Surville Blonde's Fern** 28671, brown grey, born May 5, calved May 2, 1924, bred by C. A. Romeril, St. Heliers, Jersey; *s.* Blonde's Golden Oxford 5364, *d.* Surville Orkla's Fern 25631 *by* Fern's Oxford Noble 5012.

1948 R. N.—George Cross for **Gloxalia 2nd.**

C.—1957.

Class 229.—*Jersey Heifers (in-milk), born in* 1922.[5]

1979 I. (£15, & R. N. for Special.[4])—R. Bruce Ward, Godinton, Ashford, Kent, for **Kingcup** (Vol. 34, p. 159), whole colour, born April 25, calved May 17, 1924; *s.* Pride of Kent 13707, *d.* Cowslip's Arkona *by* General Cowslip 10960.

1976 II. (£10.)—J. H. N. Roberts, Weybeards Farm, Harefield, Middlesex, for **Fly Cowslip** (Vol. 34, p. 126), whole colour, born May 17, calved March 27, 1924; *s.* General Cowslip 10960, *d.* Fly Resultat *by* Fly Sultan 12617.

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[1] Champion Prize of £5 given by the English Jersey Cattle Society for the best Cow or Heifer in Classes 227 to 230.

[2] Special Prize of £10 given by the English Jersey Cattle Society for the best Cow in Class 227, bred by Exhibitor and sired in Great Britain or Ireland.

[3] Special Prize of £10 given by the Midland Counties Jersey Club for the best English-bred Jersey Cow in Class 227, the property of a member of the Club.

[4] Special Prize of £10 given by the English Jersey Cattle Society for the best Heifer in Classes 228 or 229, bred by Exhibitor and sired in Great Britain or Ireland.

[5] Prizes, except Fourth and Fifth, given by the English Jersey Cattle Society.

1966 III. (£5.)—MRS. BERTRAM CATER, Bentworth Lodge, Alton, for **Dorothea** (Vol. 34, p. 72), whole colour, born April 23, calved May 18, 1924, bred by the late Lt.-Col. the Hon. H. G. Henderson, Buscot Park, Faringdon; *s.* Dandy 12897, *d.* Dolly *by* Kitemore Noble 11743.

1963 IV. (£4.)—GROSVENOR BERRY, Mount Bures, Bures, Suffolk, for **Postmistress** (Vol. 34, p. 18), nearly whole colour, born Jan. 23, calved Jan. 16, 1924; *s.* Lord Blackberry 13641, *d.* Postage 2nd *by* Verdun 12789.

1961 V. (£3.)—MRS. OSWALD AMES, Blackdown, Upham, Southampton, for **Karnak 24th**, broken colour, born Jan. 27, calved May 28, 1924, bred by J. L. Gruchy, St. Clements, Jersey; *s.* Masterstroke 5776, *d.* Karnak 16th 22744 *by* Wonders Pet 5082.

1962 R. N.—MRS. G. J. AUSTIN, Ellern Mede, Totteridge, Herts, for **Daisy's Reward**.

Class 230.—*Jersey Heifers, born in* 1923.

1997 I. (£5.)—R. BRUCE WARD, Godinton, Ashford, Kent, for **Mantilla**, whole, born May 10; *s.* Martinet, *d.* Mistress Lace *by* Masterman of Oaklands 13020.

1996 II. (£10.)—THE HON. MRS. MURRAY SMITH, Gumley Hall, Market Harborough, for **Blue Primrose**, whole colour, born Feb. 24; *s.* Bluebeard of Hollywood 12555, *d.* Cowslip's Spring Queen (Vol. 29, p. 233) *by* General Cowslip 10960.

1983 III. (£5.)—MRS. BERTRAM CATER, Bentworth Lodge, Alton, for **Bentworth Rosea**, whole colour, born Sept. 8; *s.* Cupid 13894, *d.* Northcliffe's Rose (Vol. 33, p. 393) *by* Northcliffe 12728.

1994 IV. (£4.)—J. H. N. ROBERTS, Weybeards Farm, Harefield, Middlesex, for **Cowslip's Polly**, whole colour, born June 27; *s.* General Cowslip 10960, *d.* Le Parcq Polly 5th (Vol. 33, p. 361) *by* Sybil's Gamboge 12467.

1981 V. (£3.)—MRS. OSWALD AMES, Blackdown, Upham, Southampton, for **Actress of Carita**, broken colour, born May 8, bred by J. le Couteur, St. John's, Jersey; *s.* Aylmer Mentor (14193), *d.* Duchess of Carita 2nd (23256) *by* Lilac's Majesty (5038).

C.—1989, 1995.

Kerries.

N.B.—In the Kerry Classes, the number inserted within brackets after the name of an animal indicates the number of such animal in the Irish Kerry Herd Book. A number without brackets indicates that the animal is registered in the British Kerry Herd Book.

Class 231.—*Kerry Bulls, born in or before* 1922.

1999 I. (£15, & R. N. for Champion.[1])—LAURENCE CURRIE, Minley Manor, Farnborough, Hants, for **Hattingly Arthur** 588, born Feb. 7, 1922, bred by Zambra and Milne, Ropley; *s.* Waterville Lord 424, *d.* Coquet Alice 1795 *by* Maeldum 223.

2003 II. (£10.)—KERRY ESTATES, LTD., The Warren House, Stanmore, Middlesex, for **Valencia Perry**, born Nov. 26, 1922, bred by the Knight of Kerry, Valencia Island, Kerry; *s.* Czar of Carton 506, *d.* Valencia Pailfil 2801 *by* Valencia Chieftain 806.

2004 III. (£5.)—KERRY ESTATES, LTD., for **Valencia Renegade** 617, born April 18, 1922, bred by the Knight of Kerry, Valencia Island, Kerry; *s.* Czar of Carton 506, *d.* Valencia Rosette 2803 *by* Castle Lough Toby 778.

Class 232.—*Kerry Bulls, born in* 1923.

2011 I. (£15.)—CAPTAIN NELSON ZAMBRA, M.C., and C. WILLIAMSON-MILNE, West Tisted Manor, Ropley, for **Hattingley Bartholomew**, born Mar. 13; *s.* Minley Monsoon 515, *d.* Hattingley Hasty 3388 *by* Waterville Lord 424.

2008 II. (£10.)—KERRY ESTATES, LTD., The Warren House, Stanmore, Middlesex, for **Raven of Carton**, born April 17, bred by the Duke of Leinster, Carton, Maynooth, Co. Kildare; *s.* Bushmount Rory 987, *d.* Delphinium 31st of Carton 4053 *by* Prince 6th of Carton 771.

2009 III. (£5.)—KERRY ESTATES, LTD., for **Valencia Sammy** 1229, born Feb. 25, bred by the Knight of Kerry, Valencia Island; *s.* Valencia Czar 534, *d.* Valencia Stella 3247 *by* Valencia Cupbearer 953.

Class 233.—*Kerry Cows (in-milk), born in or before* 1920.

2015 I. (£15, & Champion.[1])—KERRY ESTATES, LTD., The Warren House, Stanmore, Middlesex, for **Valencia Eileen 3rd** 2798, born March 14, 1916, calved April 5, 1924, bred by the Knight of Kerry, Valencia Island, Kerry; *s.* Valencia Lord 1st 782, *d.* Valencia Eileen 2nd 3778 *by* Gort Prince 636.

2021 II. (£10.)—CAPTAIN NELSON ZAMBRA, M.C., and C. WILLIAMSON-MILNE, West Tisted Manor, Ropley, Hants, for **Wadlands Flora** 2325, born Sept. 22, 1916, calved June 20, 1924, bred by R. Procter; *s.* Pendle Herald 329, *d.* Gort Flora 4th 378 *by* Gort Prince 636.

2016 III. (£5.)—KERRY ESTATES, LTD., for **Valencia Moraz** 2800, born March 24, 1920, calved April 19, 1924, bred by the Knight of Kerry, Valencia Island, Kerry; *s.* Valencia Cupbearer 953, *d.* Valencia Meta 2799 *by* Valencia Lord 1st 782.

2018 IV. (£4.)—JOHN W. TOWLER, Wadlands Hall, Farsley, Leeds, for **Gort Primrose 8th** 2260, born March 16, 1912, calved April 22, 1924, bred by D. M. Rattray, Ballybunion, Kerry; *s.* Gort Peter 688, *d.* Gort Primrose 3rd 3462 *by* Gort Earl 597.

2017 R. N.—KERRY ESTATES, LTD., for **Valencia Rosette**.

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[1] Silver Challenge Cup, value Twenty-five Guineas, given by the British Kerry Cattle Society for the best animal in Classes 231 to 235.

Class 234.—*Kerry Heifers (in-milk), born in* 1921 *or* 1922.

2025 I. (£15.)—KERRY ESTATES, LTD., The Warren House, Stanmore, Middlesex, for Valencia Sunflower 2804, born March 18, 1921, calved March 20, 1924, bred by the Knight of Kerry, Valencia Island, Co. Kerry; *s.* Czar of Carton 506, *d.* Sheen 16th 2756 *by* Kilmorna Lord 6th 698.

2024 II. (£10.)—KERRY ESTATES, LTD., for Valencia Nada 3235, born March 30, 1921, calved March 10, 1924, bred by the Knight of Kerry, Valencia Island, Co. Kerry; *s.* Czar of Carton 506, *d.* Valencia Zelva 3251 *by* Gort Prince 636.

2022 III. (£5.)—LAURENCE CURRIE, Minley Manor, Farnborough, Hants, for Minley Miranda (Vol. 22, p. 12), born Dec. 10, 1921, calved Feb. 9, 1924; *s.* Watershlen Ratmore 454, *d.* Minley Mirabel 2715 *by* Valencia Lord 3rd 370.

Class 235.—*Kerry Heifers (not in-milk), born in* 1922 *or* 1923.[1]

2033 I. (£15.)—KERRY ESTATES, LTD., The Warren House, Stanmore, Middlesex, for Valencia Ella 3469, born April 16, 1922, bred by the Knight of Kerry, Valencia Island, Co. Kerry; *s.* Czar of Carton 506, *d.* Valencia Eileen 3rd 2798 *by* Valencia Lord 1st 782.

2034 II. (£10.)—JOHN WILLIAM TOWLER, Wadlands Hall, Farsley, Leeds, for Wadlands Trent (Vol. 23, p. 24), born March 20, 1922; *s.* Vaddy Warre 2nd 420, *d.* Vaddy Trent 3rd 2092.

2026 III. (£5.)—LAURENCE CURRIE, Minley Manor, Farnborough, Hants, for Minley Dorothy (Vol. 24, p. 13), born March 23, 1923; *s.* Sloe Drop 415, *d.* Minley Midget 2445 *by* Valencia Lord 3rd 370.

2032 IV. (£4.)—KERRY ESTATES, LTD., for Muckross Kitcat, born April 22, 1922, bred by A. R. Vincent, Muckross, Killarney; *s.* Muckross Playboy of the Western World 998, *d.* Muckross Kit 4363 *by* Castlelough Larry 765.

Dexters.

N.B.—In the Dexter Classes, the number inserted within brackets after the name of an animal indicates the number of such animal in the Irish Dexter Herd Book. A number without brackets indicates that the animal is registered in the English Dexter Herd Book.

Class 236.—*Dexter Bulls, born in or before* 1922

2039 I. (£15, & R. N. for Champion.[2])—W. LINDSAY EVERARD, Ratcliffe Hall, Leicester, for Brokenhurst Philip 726, born March 13, 1921, bred by Lady Kathleen Hare, Brokenhurst Park, Hants; *s.* Brokenhurst Morilla 651, *d.* Peach Blossom of Claragh 2535 *by* Gort Ned 5th 607.

2037 II. (£10.)—MRS. E. CRAWFORD, Thorpe Satchville Hall, Melton Mowbray, for Brokenhurst Florian 724, born March 16, 1921, bred by Lady Kathleen Hare, Brokenhurst Park, Hants; *s.* Brokenhurst Morilla 651, *d.* Brokenhurst Flora 1856 *by* Cloister 463.

2040 III. (£5.)—CAPTAIN W. D. HALL, M.C., Gwernyfed Park, Three Cocks, Brecon, for Oakridge Sentinel 675, born July 17, 1919, bred by F. P. Bulley, Marston Hill, Fairford; *s.* Red Ensign 576, *d.* Malvern Scintilla 1623 *by* Oakridge Chief 332.

H. C.—2038.

Class 237.—*Dexter Bulls, born in* 1923.

2042 I. (£15.)—MRS. E. CRAWFORD, Thorpe Satchville Hall, Melton Mowbray, for Thorpe Florian, born May 8; *s.* Brokenhurst Florian 724, *d.* Burton Hill Onyx 2697.

2045 II. (£10.)—ARNOLD H. MILLER, Woodlands, Norwich, for Woodland Rufus, born June 13; *s.* Brokenhurst Rufus 2nd 695, *d.* Woodland Frivolity 3375 *by* Fillongley Falcon 656.

2043 III. (£5.)—W. LINDSAY EVERARD, Ratcliffe Hall, Leicester, for Ratcliffe Absalom 859, born May 4, bred by Mrs. H. J. Nutt, Hampton-in-Arden; *s.* Fillongley Favourite's Faux Pas 832, *d.* Fillongley Favourite 2242.

Class 238.—*Dexter Cows (in-milk), born in or before* 1920.

2051 I. (£15, & Champion.[2])—W. LINDSAY EVERARD, Ratcliffe Hall, Leicester, for Fillongley Farola 2487, born Oct. 23, 1917, calved May 31, 1924, bred by Mrs. H. J. Nutt, Hampton-in-Arden; *s.* General Manager 523, *d.* Dewberry 2239 *by* Sloeberry 494.

2052 II. (£10.)—W. LINDSAY EVERARD, for Fillongley Forest Fawn 2756, born July 19, 1919, calved June 5, 1924, bred by Mrs. H. J. Nutt, Hampton-in-Arden; *s.* Fillongley Forester 630, *d.* Who's Who 2540 *by* Barrow Orphan 498.

2053 III. (£5.)—W. LINDSAY EVERARD, for Fillongley Forest Flower 3143, born Sept. 9, 1920, calved April 22, 1924, bred by Mrs. H. J. Nutt, Hampton-in-Arden; *s.* Fillongley Forester 630, *d.* Fillongley Freesia 2491.

H. C.—2054. C.—2048.

2051 Bowl.[3]—Mrs. H. J. NUTT.

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[1] Prizes, except Fourth, given by the British Kerry Cattle Society.

[2] Silver Challenge Cup, value Twenty-five Guineas, given by the Dexter Cattle Society for the best animal in Classes 236–240.

[3] Silver Challenge Breeders Bowl, value Ten Guineas, given through the Dexter Cattle Society for the best animal in Classes 236–240, which is already registered in the Dexter Herd Book, and is the progeny of sire and dam already registered.

Class 239.—*Dexter Heifers (in-milk), born in* 1921 *or* 1922.

2058 I. (£15.)—W. Lindsay Everard, Ratcliffe Hall, Leicester, for **Brokenhurst Pansy** 2871, born May 27, 1921, calved June 6, 1924, bred by Lady Kathleen Hare, Brokenhurst Park, Hants; *s.* Brokenhurst Morilla 651, *d.* Peach Blossom 2nd of Claragh 2536 *by* Slogan of Claragh 624.

2060 II. (£10.)—Arnold H. Miller, Woodlands, Norwich, for **Woodland Friendship** (Vol. 23, p. 161), born May 5, 1922, calved May 5, 1924; *s.* Fillongley Falcon 656, *d.* Woodland Beautiful 2444 *by* Oakridge Smiler 547.

2061 III. (£5.)—The Rev. R. Lingard Simkin, Durbridge, Redmarley, Gloucester, for **Oakridge Bess 10th** 2998, born Dec. 8, 1921, calved June 3, 1924; *s.* Oakridge Black-Jack 670, *d.* Oakridge Bess 8th 2997 *by* Brokenhurst Coy Boy 539.

Class 240.—*Dexter Heifers (not in-milk), born in* 1922 *or* 1923.[1]

2068 I. (£15.)—W. Lindsay Everard, Ratcliffe Hall, Leicester, for **Fillongley Fragrant Flower** 3295, born May 14, 1922, bred by Mrs. H. J. Nutt, Hampton-in-Arden; *s.* Barrow Brake 763, *d.* Fillongley Freesia 2491.

2070 II. (£10.)—Arnold H. Miller, Woodlands, Norwich, for **Woodland Butterfly 2nd** (Vol. 23, p. 161), born Aug. 18, 1922; *s.* Fillongley Falcon 656, *d.* Woodland Butterfly 3047 *by* Woodland Smiler 619.

2069 III. (£5.)—Herbert J. Mason, Woodlands, Alvechurch, Worcs., for **Alvechurch Berrie**, born April 25, 1923; *s.* Wise Boy 759, *d.* Fillongley Flare 2922 *by* April Fool 640.

2062 IV. (£4)—Miss Dora Box, The Hawthornes, Wheaton Aston, Stafford, for **Wightwick Baby 2nd**, born April 5, 1923; *s.* Oakridge Pat 673, *d.* Wightwick Biddy 2541.
H. C.—2063.

Milk Yield Classes.

Class 241.—*Dairy Shorthorn Cows or Heifers.*

1315 I. (£15.)—J. G. Peel, Peover Hall, Over Peover, Knutsford, for **Watercrook Rose** (Vol. 64, p. 1120), roan, born Jan. 21, 1917, calved April 29, 1924, bred by J. Moffat, Spital, Kendal; *s.* Village Boy 128657, *d.* Rosemary *by* Queensbury 109801.

1357 II. (£10.)—J. Pierpont Morgan, for **Longhills Belle 2nd.** (See Class 166.)

1341 III. (£5.)—The Duke of Westminster, G.C.V.O., D.S.O., Eaton Hall, Chester, for **Monkhill Duchess 3rd** 7107, roan, born Jan. 14, 1919, calved June 15, 1924, bred by John Rickerby, Monkhill, Burgh-by-Sands, Carlisle; *s.* Carleton Dairy King 141439, *d.* Duchess of Armathwaite 14th *by* Lancaster 109107.

1300 IV. (£4.)—A. R. Fish, for **Combebank Johnby.** (See Class 164.)

Class 242.—*Non-Pedigree Dairy Shorthorn Cows or Heifers.*

1409 I. (£15.)—J. Pierpont Morgan, for **Empress 8th.** (See Class 169.)
1399 II. (£10.)—Misses E. and M. Balfour, for **Poppy.** (See Class 168.)
1404 III. (£5.)—Thomas Hatton, for **Polly.** (See Class 168.)
1403 IV. (£4.)—H. A. Brown, for **Isabelle.** (See Class 168.)

Class 243.—*Lincolnshire Red Shorthorn Cows or Heifers.*

1448 I. (£15.)—Lt.-Col. Sir Archibald Weigall, K.C.M.G., for **Sibsey Rose.** (See Class 174.)
1447 II. (£10.)—Lt.-Col. Sir Archibald Weigall, K.C.M.G., for **Langford Polly 5th.** (See Class 174.)
1436 III. (£5.)—J. O. Burchnall, for **Flamville Dairymaid 127th.** (See Class 174.)
1438 IV. (£4.)—J. T. Cox, for **Foston No. 18.** (See Class 174.)

Class 247.—*Red Poll Cows or Heifers.*

1545 I. (£15.)—S. Scrimgeour, for **Sotterley Winsome.** (See Class 194.)

1540 II. (£10.)—W. R. Glazebrook, Jun., The Lydiate, Willaston, Birkenhead, for **Gressenhall Red Berry** 23508, born July 14, 1911, calved June 6, 1924, bred by J. E. Hill, Gressenhall, Dereham; *s.* Gressenhall Beresford 10174, *d.* Strawberry 3rd *by* Edgar 8949.

Class 248.—*Blue Albion Cows or Heifers.*

1617 I. (£15.)—T. H. Swire & Sons, for **Mount Sweetheart.** (See Class 200.)

Class 249.—*British Friesian Cows or Heifers.*

1704 I. (£15, & Champion.[2])—Walter B. Robinson, Elmcroft, Scawby, Brigg, for **Felhampton Ariadne** 33340, born Nov. 20, 1918, calved May 22, 1924, bred by James Dale, Felhampton Court, Church Stretton; *s.* Marsh (imported) Generaal 4157, *d.* Colton Bridesmaid 3rd 17258 *by* Colton Sultan 2525.

1693 II. (£10, & R. N. for Champion.[2])—G. Holt Thomas, Northdean House, Hughenden, High Wycombe, for **Kingswood Myrtle Leaf** 25220, born Nov. 10, 1916, calved June 15, 1924, bred by Horace Hale, Kingswood, Tandridge, Oxted, Surrey; *s.* Kingswood (imported) Ynte 4047, *d.* Kingswood Myrtle 9294 *by* Kingswood Prince 341.

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[1] Prizes, except Fourth, given by the Dexter Cattle Society.

[2] Champion Prize of £30, with £5 to the Reserve Number, given by a Society interested in the production of milk, for the Cows obtaining the highest number of points in the Dairy Shorthorn, Lincolnshire Red Shorthorn, Devon, South Devon, Longhorn, Red Poll, Blue Albion, and British Friesian Milk Yield Competitions.

1701 **III. (£5.)**—F. and T. Neame, Macknade, Faversham, for **Macknade Esther** 34720, born May 3, 1918, calved June 12, 1924, bred by F. Neame; *s.* Golf Boter 4th 5131, *d.* Macknade Hester 18508 *by* Hedges Nimrod 301.

1692 **IV. (£4.)**—G. Holt Thomas, for **Colton Sunray** 32650, born Oct. 31, 1918, calved March 22, 1924, bred by Hugh Brown, Colton Mains, Dunfermline; *s.* Terling (imported) Vic Bertus 4541, *d.* Colton Sunset 6868 *by* Colton Puritan 95.

1691 **V. (£3.)**—G. Holt Thomas, for **Brookside Bonnie Annie** 37514, born March 7, 1919, calved March 30, 1924, bred by Harold B. Cooke, Homewood Gate, East Chiltington, Lewes; *s.* Petygards (imported) Bles Albert 4321, *d.* Hedges Bonnie Annie 1698 *by* Hedges Hawkrigg Duke 293.

H. C.—1679, 1699, 1706, 1709.

Class 250.—*Ayrshire Cows or Heifers.*

1813 **I. (£15, & Champion.[1])**—James Howie, for **Friendlesshead Blossom 4th.** (See Class 215a.)

1811 **II. (£10, & R. N. for Champion.[1])**—William Gibson, for **Moorside Amelia.** (See Class 215a.)

1810 **III. (£5.)**—William Gibson, for **Moorside Achillea.** (See Class 215a.)

H. C.—1805.

Class 251.—*Guernsey Cows or Heifers.*

1842 **I. (£15.)**—A. Chester Beatty, for **Lizette of St. Catherine.** (See Class 220.)

1846 **II. (£10.)**—Walter Dunkels, for **Starlight Broom.** (See Class 220.)

1850 **III. (£5.)**—E. J. Wythes, Copped Hall, Epping, for **Engew Pansy** 10006, fawn and white, born April 28, 1913, calved April 4, 1924, bred by Paul Christopher, Engew, Gwithian, Hayle, Cornwall; *s.* Ladock Dairymaid 2049, *d.* Egnew Blue Stocking 2nd 8483 *by* Trengwainton Village Favourite 2102.

1848 **IV. (£4.)**—Sir James Remnant, Bart., M.P., for **Dene Treacle 2nd.** (See Class 220.)

Class 252.—*Jersey Cows or Heifers.*

1963 **I. (£15.)**—Grosvenor Berry, for **Postmistress.** (See Class 229.)

1937 **II. (£10.)**—L. E. Tubbs, for **Oxlip.** (See Class 227.)

1911 **III. (£5.)**—Grosvenor Berry, for **Golden Raspberry**, whole colour, born Dec. 29, 1920, calved Feb. 9, 1924; *s.* Golden Bilberry 13587, *d.* Raspberry 2nd (Vol. 32, p. 437) *by* Verdun 12789.

1907 **IV. (£4.)**—Mrs. Oswald Ames, for **Park Mayfire.** (See Class 227.)

1943 **V. (£3.)**—R. Bruce Ward, Godinton, Ashford, Kent, for **Progress** (Vol. 32, p. 430), whole colour, born July 4, 1918, calved Feb. 9, 1924; *s.* Marcher 13012, *d.* Promise *by* Oxford Sunbeam 8650.

H. C.—1909, 1912, 1934, 1944, 1948, 1951, 1957.

1935 **Special.[2]**—The Hon. Mrs. Murray Smith, for **Lubenham May.**

Class 253.—*Kerry Cows or Heifers.*

2015 **I. (£15, & Champion.[3])**—Kerry Estates, Ltd., for **Valencia Eileen 3rd.** (See Class 233.)

Class 254.—*Dexter Cows or Heifers.*

2054 **I. (£15, & R. N. for Champion.[3])**—W. Lindsay Everard, Ratcliffe Hall, Leicester, for **Gort Primula 7th** 2627, born April 24, 1916, calved May 26, 1924, bred by D. M. Rattray, Gortnaskehy, Ballybunion, Co. Kerry; *s.* Gort Ned 5th 631, *d.* Gort Primula 6th 2542 *by* Gort Punch 3rd 592.

2055 **II. (£10.)**—W. Lindsay Everard, for **Wingerworth Fan** 2680 F.S., born in March, 1915, calved June 2, 1924.

2051 **III. (£5.)**—W. Lindsey Everard, for **Fillongley Farola.** (See Class 238.)

Butter Tests.

Class 255a.—*Cows, exceeding* 900 *lb. live weight.*

1693 **I. (£15.)**—G. Holt Thomas, for **Kingswood Myrtle Leaf.** (See Class 249.)

1545 **II. (£10.)**—S. Scrimgeour, for **Sotherley Winsome.** (See Class 194.)

1702 **III. (£5.)**—Sydney Pyman, Pigeon House, Ross-on-Wye, for **Felhampton Susan** 20988, born Oct. 3, 1915, calved May 25, 1924, bred by James Dale, Felhampton Court, Church Stretton; *s.* Marsh (imported) Generaal 4157, *d.* Higham Susan 2nd 8978 *by* Higham Magpie 1501.

1813 **IV. (£4.)**—James Howie, for **Friendlesshead Blossom 4th.** (See Class 215a.)

1692 **V. (£3.)**—G. Holt Thomas, for **Colton Sunray.** (See Class 249.)

H. C.—1315, 1341, 1367, 1409, 1448, 1699, 1701, 1842, 1846, 1909, 1910.

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[1] Champion Prize of £20, with £5 to the Reserve Number, given by a Society interested in the production of milk, for the Cows obtaining the highest number of points in the Ayrshire, Guernsey and Jersey Milk Yield Competitions.

[2] Special Prize of £5 given by the Midland Counties Jersey Club for the Jersey Cow in Class 252 giving the greatest weight of milk, the property of a member of the Club.

[3] Champion Prize of £10, with £5 to the Reserve Number, given by a Society interested in the production of milk, for the Cows obtaining the highest number of points in the Kerry and Dexter Milk Yield Competitions.

Class 255b.—*Cows, not exceeding* 900 *lb. live weight.*

1911 I. (£15, & G.M.[1])—GROSVENOR BERRY, for Golden Raspberry. (See Class 252.)
1963 II. (£10, & S.M.[1])—GROSVENOR BERRY, for Postmistress. (See Class 229.)
1943 III. (£5, & B.M.[1])—R. BRUCE WARD, for Progress. (See Class 252.)
1912 IV. (£4.)—GROSVENOR BERRY, for Postage 2nd (Vol. 32, p. 425), whole colour, born April 18, 1918, calved March 16, 1924; *s.* Verdun 12789, *d.* Postage *by* Dinah's Bat 11669.
1937 V. (£3.)—L. E. TUBBS, for Oxlip. (See Class 227.)
1934 Certificate of Merit,[2] & Special.[3]—THE HON. MRS. MURRAY SMITH, for Bayleaf's Violette.
1944 Certificate of Merit.—R. BRUCE WARD, for Prometheus Queen.

GOATS.[4]

Class 256.—*Toggenburg Female Goats (in-milk), any age, entered or eligible for entry in the Toggenburg Section of the Herd Book.*

2071 I. (£5, & Champion.[5])—MISS MARJORIE HENDERSON, The Riding, Hexham, for Riding Cherry 412, born March 9, 1919, kidded March 16, 1924; *s.* Brendon Friday 349, *d.* Riding Crocus 367 *by* Sedgemere Paris 2nd.
2073 II. (£3.)—MISS MARJORIE HENDERSON, for Vertue 519, kidded May 30, 1924.
2074 III. (£2.)—MRS. JOHN C. STRAKER, Stagshaw, Corbridge, for Leazes Hackee 443, born Feb. 15, 1920, kidded April 1, 1923; *s.* Brendon Friday 349, *d.* Leazes Hackberry 304 *by* Copthorne Billiken 274.
2075 R. N.—MRS. PERCY WAINWRIGHT, Sheepwalks, Castleford, Yorks, for Ballywalter Sarah.

Class 258.—*Anglo-Nubian Female Goats (in-milk), any age, entered or eligible for entry in the Anglo-Nubian Section of the Herd Book.*

2081 I. (£5, & Champion.[6])—MISS K. PELLY, Theydon Place, Epping, for Nash Bellona 1275, born March 25, 1920, kidded March 30, 1924, bred by W. Horne, Nash Court, Westwell, Kent; *s.* Edenbreck Danaus 343, *d.* Nash Bella 1112 *by* Edenbreck Midas 740.
2079 II. (£3.)—MISS K. PELLY, for Theydon Beauty 1272, born March 13, 1920, kidded May 9, 1924; *s.* Sadberge Marcus Coriolanus 1003, *d.* Theydon Tansy 1079 *by* Edenbreck Klito 947.
2080 III. (£2.)—MISS K. PELLY, for Theydon Annette 1304, born May 6, 1920, kidded May 24, 1924; *s.* Sadberge Marcus Coriolanus 1003, *d.* Regius Aganippe 895 *by* Wigmore Norman 562.
2082 R. N.—MISS K. PELLY, for Theydon Angela.

Class 259.—*British Toggenburg or British Alpine Female Goats (in-milk), any age.*

2084 I. (£5, & Champion.[7])—MRS. ARTHUR ABBEY, Didgemere Hall, Roydon, Essex, for Didgemere Dawdler 5075, British Alpine, born June 1, 1921, kidded Feb. 26, 1924; *s.* Prophet of Bashley 3775, *d.* Preference 2779 *by* Leazes Lucky Halton 2575.
2093 II. (£3.)—MRS. HARRY POTTON, The Homestead, Rayleigh, Essex, for Rayleigh Dancer 5414, British Toggenburg, born March 2, 1922, kidded April 11, 1924; *s.* Dochfour Wilfrid 4463, *d.* Honeymead Dainty 2388 *by* Klito.
2085 III. (£2.)—MRS. ARTHUR ABBEY, for Didgemere Delilah 5553, British Alpine, born March 19, 1922, kidded March 1, 1924; *s.* Prophet of Bashley 3775, *d.* Tremedda Lidia 3555 *by* Copthorne Star 3120.
2089 IV. (£1.)—MRS. HINES, Watley, Twyford, Winchester, for Beechmead Dolly 4724, British Toggenburg, born Feb. 14, 1921, kidded March 6, 1924; *s.* Edenstead Pluck 3007, *d.* Beechmead Kitty 3418 *by* Copthorne Brigadier 2608.
2090 V. (10s.)—MRS. HINES, for Beechmead Girlie 5400, British Toggenburg, born Feb. 16, 1922, kidded April 5, 1924; *s.* Proud 2853, *d.* Ira Patchy 3383 *by* Broxbourne White Nugget 1999.
2091 R. N.—MRS. HARRY POTTON, for Empress March.
H. C.—2092. C.—2094.

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[1] Gold Medal, Silver Medal, and Bronze Medal given by the English Jersey Cattle Society for the three Jersey Cows obtaining the greatest number of points in the Butter Tests.

[2] Certificate of Merit given by the English Jersey Cattle Society for Jersey Cows, not being Prize Winners, obtaining the following points: Cows five years old and upwards, 35 points; Cows under five years old, 30 points.

[3] Special Prize of £5 given by the Midland Counties Jersey Club for the Jersey Cow obtaining the greatest number of points in the Butter Tests, the property of a member of the Club.

[4] £30 towards these Prizes were given by the British Goat Society.

[5] Breed Challenge Certificate given by the British Goat Society for the best Toggenburg Female Goat, over 2 years old.

[6] Breed Challenge Certificate given by the British Goat Society for the best Anglo-Nubian Female Goat, over 2 years old.

[7] Challenge Certificate, given by the British Goat Society, for the best Dual Purpose Goat.

Class 260.—*Female Goats (in-milk), any age, any other variety, not eligible for Classes* 256 *to* 259.

2097 **I. (£5, & Champion.[1])**—Mrs. Arthur Abbey, Didgemere Hall, Roydon, Essex, for **Didgemere Dancer** 5074, Anglo-Nubian-Swiss, born March 12, 1921, kidded Feb. 5, 1924; *s.* Prophet of Bashley 3775, *d.* Withdean Countess 2855 *by* Leazes Lucky Halton 2575.

2105 **II. (£3.)**—Mrs. Morcom, The Clock House, Bromsgrove, for **Leazes Fortitude** 3710, Anglo-Nubian-Swiss, born March 14, 1919, kidded Feb. 14, 1924, bred by the Rev. R. F. Allgood; *s.* Leazes Haydon 3265, *d.* Leazes Lady Fortune 2173 *by* Broxbourne Adveral 1947.

2101 **III. (£2.)**—Baroness Burton, Dochfour, Inverness, for **Edette**, Anglo-Nubian-Swiss, born March 6, 1921, kidded March 7, 1924, bred by Edwin Tipper, Cross Plains, Newborough, Staffs; *s.* Dochfour Arrogance.

2106 **IV. (£1.)**—Mrs. Harry Potton, The Homestead, Rayleigh, Essex, for **Rayleigh Princess** 5749, Anglo-Nubian-Swiss, born Feb. 24, 1922, kidded April 7, 1924; *s.* Dochfour Wilfrid 4463, *d.* Rayleigh Prima Donna 134.

2104 **V. (10s.)**—Mrs. Hines, Watley, Twyford, Winchester, for **Beechmead Snow** 5404, Anglo-Nubian-Swiss, born March 9, 1922, kidded March 22, 1924; *s.* Proud 2853, *d.* Beechmead Kitty 3418 *by* Copthorne Brigadier 2608.

2108 **R. N.**—Mrs. John C. Straker, Stagshaw House, Corbridge, for **Leazes Fidelia.**

H. C.—2107. **C.**—2102.

Class 261.—*Toggenburg or British Toggenburg Goatlings, over* 1 *but not exceeding* 2 *years old.*

2109 **I. (£5.)**—Miss Alexander, Knaresborough, for **Stockwell Correopsis** [551, Toggenburg, born June 29, 1923; *s.* Edel 524, *d.* Korea 518.

2111 **II. (£3.)**—Mrs. Percy Wainwright, Sheepwalks, Castleford, for **Fryston Senna** 540, Toggenburg, born April 29, 1923; *s.* Edel 524, *d.* Ballywalter Sarah 356 *by* Sedgmere Paris 2nd 292.

2110 **III. (£2.)**—Miss Alexander, for **Stockwell Corriander** 552, Toggenburg, born June 29, 1923; *s.* Edel 524, *d.* Korea 518.

Class 262.—*Saanen or British Saanen Goatlings, over* 1 *but not exceeding* 2 *years old.*

2115 **I. (£5.)**—Mrs. Morcom, The Clock House, Bromsgrove, for **Wynanda of Westons** 45, Saanen, born April 6, 1923, bred by Miss Chamberlain, Westons Bank, Lyndhurst, Hants; *s.* Van Tromp 30, *d.* Wilhelmina 20.

2114 **II. (£3.)**—Mrs. Hines, Watley, Twyford, Winchester, for **Beechmead Faith** 6012, born Feb. 24, 1923; *s.* Dochfour White Pearl 4465, *d.* Beechmead Dolly 4724 *by* Edenstead Pluck 3007.

Class 263.—*Anglo-Nubian Goatlings, entered or eligible for entry in the Anglo-Nubian Section of the Herd Book, over* 1 *but not exceeding* 2 *years old.*

2117 **I. (£5.)**—Miss K. Pelly, Theydon Place, Epping, for **Theydon Bettina** 1532, born March 19, 1923; *s.* Sadberge Alexander 1243, *d.* Theydon Beauty 1272 *by* Sadberge Marcus Coriolanus 1003.

2116 **II. (£3.)**—Miss K. Pelly, for **Theydon Belinda** 1575, born April 17, 1923; *s.* Sadberge Alexander 1243, *d.* Nash Bella 1112 *by* Edenbreck Midas 740.

Class 264.—*Goatlings, any other variety, over* 1 *but not exceeding* 2 *years old, not eligible for Classes* 261 *to* 263.

2119 **I. (£5, & Champion.[2])**—Mrs. Arthur Abbey, Didgemere Hall, Roydon, Essex, for **Didgemere Dream** 5967, British Alpine, born Feb. 17, 1923; *s.* Prophet of Bashley 3775, *d.* Withdean Countess 2855 *by* Leazes Lucky Halton 2575.

2120 **II. (£3.)**—Mrs. Arthur Abbey, for **Didgemere Dulcette** 5956, British Alpine, born April 6, 1923; *s.* Ridgeway Rama 4713, *d.* Didgemere Dulcie 4233 *by* Prophet of Bashley 3775.

2118 **III. (£2.)**—Mrs. Arthur Abbey, **Didgemere Doxology** 5965, British Alpine, born Feb. 10, 1923; *s.* Didgemere Duncan 5556, *d.* Tremeddia Allegra 4236 *by* Leazes Lucky Halton 2575.

2121 **R. N.**—Miss Marjorie Henderson, The Riding, Hexham, for **Riding Topaz.**

H. C.—2123. **C.**—2122.

Class 265.—*Female Kids, any variety, not over* 1 *year old.*

2125 **I. (£5, & Champion.[3])**—Mrs. Arthur Abbey, Didgemere Hall, Roydon, Essex, for **Didgemere Design**, British Alpine, born March 3, 1924; *s.* Didgemere Daniel 5955, *d.* Withdean Countess 2855 *by* Leazes Lucky Halton 2575.

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[1] Challenge Certificate given by the British Goat Society for the best Female Goat, over 2 years old, that has borne a kid.

[2] Bronze Medal given by the British Goat Society for the best Goatling.

[3] Bronze Medal given by the British Goat Society for the best Kid.

2129 **II. (£3.)**—Miss K. Pelly, Theydon Place, Epping, for **Theydon Bangle 1610**, Anglo-Nubian, born March 28, 1924; *s.* Sadberge Marcus Coriolanus 1003, *d.* Theydon Belladonna 1512 *by* Theydon Marconi 1138.
2130 **III. (£2.)**—Miss K. Pelly, for **Theydon Butterfly 1615**, Anglo-Nubian, born March 10, 1924; *s.* Sadberge Marcus Coriolanus 1003, *d.* Theydon Babette 1436 *by* Theydon Angus 1136.
2128 **R. N.**—Mrs. Hines, Watley, Twyford, Winchester, for **Beechmead Snowball.**

Milk Yield Class.

Class 266.—*Milk Yield Class, open to animals entered in Classes* 256 *to* 260.

2091 **I. (£5.)**—Mrs. Harry Potton, The Homestead, Rayleigh, Essex, for **Empress March S.R. 241**, British Toggenburg, born in March, 1919, kidded April 8, 1924, breeder unknown.
2105 **II. (£3, & Champion.[1])**—Mrs. Morcom, for **Leazes Fortitude.** (See Class 260.)
2084 **III. (£2, & R. N. for Champion.[1])**—Mrs. Arthur Abbey, for **Didgemere Dawdler.** (See Class 259.)
2106 **IV. (£1.)**—Mrs. Harry Potton, for **Rayleigh Princess.** (See Class 260.)
2102 **V. (10s.)**—Miss Marjorie Henderson, The Riding, Hexham, for **Riding Topsy 2nd 4360**, Anglo-Nubian-Swiss, born April 19, 1920, kidded April 13, 1924; *s.* Riding Cinnamon 431, *d.* Riding Tansy 3341 *by* Ciceter Hearthstone.
2085 **R. N.**—Mrs. Arthur Abbey, for **Didgemere Delilah.**
H.C.—2093, 2107. **C.**—2089, 2090, 2101, 2104.
2081 **Cup.[2]**—Miss K. Pelly, for **Nash Bellona.**
2079 **R. N. for Cup.[2]**—Miss K. Pelly, for **Theydon Beauty.**
2084 and 2119 **Cup.[3]**—Mrs. Arthur Abbey, for **Didgemere Dawdler** and **Didgemere Dream.**
2085 and 2120 **R. N. for Cup.[3]**—Mrs. Arthur Abbey, for **Didgemere Delilah** and **Didgemere Dulcette.**

SHEEP.

Oxford Downs.

Class 267.—*Oxford Down Shearling Rams.*

2140 **I. (£10, & Champion.[4])**—F. Penson, Taston, Charlbury, Oxon.
2144 **II. (£5)**, 2141 **III. (£3)**, and 2142 **IV. (£2.)**—Hugh William Stilgoe, The Grounds, Adderbury, Banbury.
2132 **V. (£1.)**—George Harrison, Gainford Hall, Darlington.
2146 **R. N.**—William Trevethan, Broadstone Hill, Chipping Norton.
C.—2131, 2133, 2134, 2136, 2137, 2138.

Class 268.—*Oxford Down Ram Lambs.*

2156 **I. (£10.)**—F. Penson, Taston, Charlbury, Oxon.
2154 **II. (£5.)**—Robert W. Hobbs & Sons, Ltd., Kelmscott, Lechlade.
2150 **III. (£3)**, & 2151 **IV. (£2.)**—W. R. Gauntlett & Son, Manor Farm, Fairford, Glos.
2153 **V. (£1.)**—George Harrison, Gainford Hall, Darlington.
2157 **R. N.**—Hugh W. Stilgoe, The Grounds, Adderbury, Banbury.
C.—2155.

Class 269.—*Three Oxford Down Ram Lambs.*

2163 **I. (£10, & R. N. for Champion.[4])**—Robert W. Hobbs & Sons, Ltd., Kelmscott, Lechlade, Glos.
2162 **II. (£5.)**—W. R. Gauntlett & Son, Manor Farm, Fairford, Glos.
2165 **III. (£3.)**—Hugh W. Stilgoe, The Grounds, Adderbury, Banbury.
2164 **R. N.**—Ellis C. Johnson, The Yews, Great Glen, Leicester.

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[1] The "Dewar" Challenge Trophy, given through the British Goat Society, for the Goat entered in either the General or the Toggenburg section of the Society's Herd Book winning the highest number of points in the Milking Classes.

[2] The "Pomeroy" Challenge Cup, given through the British Goat Society, for the best Anglo-Nubian entered in the Anglo-Nubian section of the Society's Herd Book winning the highest number of points in the Milking Classes.

[3] The "Dewar" Cup given through the British Goat Society for the Exhibitor showing a Female Goat in milk, and a Goatling, under certain conditions.

[4] The "Heythrop" Silver Challenge Cup, value £75, given through the Oxford Down Sheep Breeders' Association for the best exhibit of Oxford Down Sheep in Classes 267 to 271.

Class 270.—*Oxford Down Shearling Ewes.*

2171 I. (£10.)—F. Penson, Taston, Charlbury, Oxon.
2172 II. (£5.)—Hugh W. Stilgoe, The Grounds, Adderbury, Banbury.
2173 III. (£3.)—William Trevethan, Broadstone Hill, Chipping Norton.
2169 R. N.—Ellis C. Johnson, Great Glen, Leicester, for Glenn Model.
H. C.—2168, 2174.

Class 271.—*Three Oxford Down Ewe Lambs.*

2179 I. (£10.)—Robert W. Hobbs & Sons, Ltd., Kelmscott, Lechlade, Glos.
2181 II. (£5.)—F. Penson, Taston, Charlbury, Oxon.
2177 III. (£3.)—W. R. Gauntlett & Son, Manor Farm, Fairford, Glos.
2180 IV. (£2.)—Ellis C. Johnson, The Yews, Great Glen, Leicester.

Shropshires.

Class 272.—*Shropshire Two Shear Rams.*

2187 I. (£10, & Champion.[1])—William Everall, Shrawardine Castle, Shrewsbury.
2189 II. (£5.)—J. G. Peel, Peover Hall, Over Peover, Knutsford, for Peover Blue Bell.
2191 III. (£3.)—J. H. Wheatley, Berkswell Hall, Coventry, for Grendon Raymond, bred by H. A. Brown, Grendon, Atherstone.
2190 R. N.—E. Craig Tanner, Eyton-on-Severn, Cross Houses, Salop.

Class 273.—*Shropshire Shearling Rams.*

2195 I. (£10, & R. N. for Champion[1]), & 2196 IV. (£2.)—H. A. Brown, Croft House, Grendon, Atherstone.
2198 II. (£5.)—Mrs. W. F. Inge, Thorpe Hall, Tamworth.
2200 III. (£3.)—E. and F. Nock, Harrington Hall, Shifnal, Salop.
2203 V. (£1.), & 2204 R. N.—E. Craig Tanner, Eyton-on-Severn, Cross Houses, Salop.
H. C.—2194, 2197, 2201.

Class 274.—*Three Shropshire Shearling Rams.*[2]

2207 I. (£10, & R. N. for Champion.[3])—H. A. Brown, Croft House, Grendon, Atherstone.
2212 II. (£5.)—E. Craig Tanner, Eyton-on-Severn, Cross Houses, Salop.
2211 III. (£3.)—N. J. Nunnerley, Tern Hill, Market Drayton.
2208 R. N.—William Everall, Shrawardine Castle, Shrewsbury.
H. C.—2209. C.—2205, 2206, 2210.

Class 275.—*Three Shropshire Ram Lambs.*

2214 I. (£10.)—H. A. Brown, Croft House, Grendon, Atherstone.
2215 II. (£5.)—William Everall, Shrawardine Castle, Shrewsbury.
2217 III. (£3.)—N. J. Nunnerley, Tern Hill, Market Drayton.
2219 R. N.—E. Craig Tanner, Eyton-on-Severn, Cross Houses, Salop.
H. C.—2213, 2218.

Class 276.—*Three Shropshire Shearling Ewes.*

2224 I. (£10, & Champion [3]), & 2225 R. N.—Mrs. W. F. Inge, Thorpe Hall, Tamworth.
2227 II. (£5.)—E. Craig Tanner, Eyton-on-Severn, Cross Houses, Salop.
2222 III. (£3.)—Captain F. B. F. Bibby, Hardwicke Grange, Shrewsbury.
2223 IV. (£2.)—William Everall, Shrawardine Castle, Shrewsbury.
H. C.—2220, 2221.

Class 277.—*Three Shropshire Ewe Lambs.*

2230 I. (£10.)—H. A. Brown, Croft House, Grendon, Atherstone.
2232 II. (£5.)—Mrs. W. F. Inge, Thorpe Hall, Tamworth.
2235 III. (£3.)—E. Craig Tanner, Eyton-on-Severn, Cross Houses, Salop.
2233 R. N.—N. G. Nunnerley, Tern Hill, Market Drayton.
H. C.—2231, 2234.

Southdowns.

Class 278.—*Southdown Two Shear Rams.*

2243 I. (£10, & Champion[4]), & 2242 III. (£3.)—Lady Ludlow, Luton Hoo, Luton.
2237 II. (£5), & 2238 R. N.—His Majesty the King, Sandringham.

Class 279.—*Southdown Shearling Rams.*

2244 I. (£10, & R. N. for Champion.[4])—His Majesty the King, Sandringham.
2249 II. (£5), & 2248 III. (£3.)—Lady Ludlow, Luton Hoo, Luton.

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[1] Champion Silver Medal given by the Shropshire Sheep Breeders' Association for the best Ram in Classes 272 and 273.

[2] Prizes given by the Shropshire Sheep Breeders' Association.

[3] The "Eaton" Silver Challenge Cup, value Fifty Guineas, given through the Shropshire Sheep Breeders' Association for the best exhibit of Shropshire Sheep in Classes 272 to 277.

[4] Champion Gold Medal, value £10 10*s.*, given by the Southdown Sheep Society for the best Ram in Classes 278 and 279.

Class 280.—*Three Southdown Shearling Rams.*[1]

2254 I. (£10.)—His Majesty the King, Sandringham.
2258 II. (£5.)—Lady Ludlow, Luton Hoo, Luton.

Class 281.—*Three Southdown Ram Lambs.*

2261 I. (£10.)—His Majesty the King, Sandringham.
2266 II. (£5.)—Lady Ludlow, Luton Hoo, Luton.
2268 III. (£3.)—J. Pierpont Morgan, Wall Hall, Aldenham, Watford.

Class 282.—*Three Southdown Shearling Ewes.*

2273 I. (£10, & Champion.[2])—Lady Ludlow, Luton Hoo, Luton.
2270 II. (£5.)—His Majesty the King, Sandringham.
2275 III. (£3), & 2274 R. N.—J. Pierpont Morgan, Wall Hall, Aldenham, Watford.

Class 283.—*Three Southdown Ewe Lambs.*

2276 I. (£10, & R. N. for Champion.[2])—His Majesty the King, Sandringham.
2281 II. (£5.)—Lady Ludlow, Luton Hoo, Luton.
2283 III. (£3.)—J. Pierpont Morgan, Wall Hall, Aldenham, Watford.

Hampshire Downs.

Class 284.—*Hampshire Down Shearling Rams.*

2289 I. (£10.)—Major and Mrs. Jervoise, Herriard Park, Basingstoke, for **Herriard Don 6th.**
2288 II. (£5.)—James Goldsmith, Blendworth, Horndean, Hants, for **Blendworth Septimus.**
2287 III. (£3.)—James Goldsmith, for **Blendworth Primus.**
2294 IV. (£2), & 2293 R. N.—V. T. Thompson, Norton Manor, Sutton Scotney, Hants.
2290 V. (£1.)—Major and Mrs. Jervoise, for **Herriard Goldmine 20th.**

Class 285.—*Hampshire Down Ram Lambs.*

2305 I. (£10, & R. N. for Champion.[3]), & 2304 V. (£1.)—V. T. Thompson, North Manor, Sutton Scotney, Hants.
2300 II. (£5), & 2301 IV. (£2.)—Major and Mrs. Jervoise, Herriard Park, Basingstoke.
2299 III. (£3.)—James Goldsmith, Blendworth, Horndean, Hants.

Class 286.—*Three Hampshire Down Ram Lambs.*

2310 I. (£10, & Champion.[3])—James Goldsmith, Blendworth, Horndean, Hants.
2313 II. (£5.)—V. T. Thompson, Norton Manor, Sutton Scotney, Hants.
2311 III. (£3.)—Major and Mrs. Jervoise, Herriard Park, Basingstoke.

Class 288.—*Three Hampshire Down Ewe Lambs.*

2326 I. (£10.)—V. T. Thompson, Norton Manor, Sutton Scotney, Hants.
2324 II. (£5.)—Major and Mrs. Jervoise, Herriard Park, Basingstoke.

Suffolks.

Class 289.—*Suffolk Two Shear Rams.*

2329 I. (£10.)—S. R. Sherwood, Playford, Ipswich, for **Roystone Royal 17366**, bred by W. C. Jackson, Fowlmere, Royston.

Class 290.—*Suffolk Shearling Rams.*

2334 I. (£10), & 2335 III. (£3.)—S. R. Sherwood, Playford, Ipswich.
2330 II. (£5.)—R. L. Barclay, C.B.E., Higham, Bury St. Edmunds, for ram, bred by C. R. W. Adeane, C.B., Babraham, Cambridge.

Class 291.—*Suffolk Ram Lambs.*

2346 I. (£10.)—S. R. Sherwood, Playford, Ipswich.
2341 II. (£5.)—G. A. Goodchild, Great Yeldham Hall, Castle Hedingham.
2340 III. (£3.)—G. R. C. Foster, Anstey Hall, Trumpington, Cambs.
2337 R. N.—Sir Ernest Cassel's Exors., Carlton Grange, Brinkley, Newmarket.

Class 292.—*Three Suffolk Ram Lambs.*[4]

2349 I. (£10, & Champion.[5])—G. R. C. Foster, Anstey Hall, Trumpington, Cambs.
2350 II. (£5.)—G. A. Goodchild, Great Yeldham Hall, Castle Hedingham.
2347 III. (£3.)—Sir Ernest Cassel's Exors., Carlton Grange, Brinkley, Newmarket.

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[1] Prizes given by the Southdown Sheep Society.

[2] Champion Silver Medal given by the Southdown Sheep Society for the best Pen of Ewes or Ewe Lambs in Classes 282 and 283.

[3] Champion Prize of £10 given by the Hampshire Down Sheep Breeders' Association for the best exhibit of Hampshire Down Sheep in Classes 284 to 288.

[4] Prizes given by the Suffolk Sheep Society.

[5] Perpetual Challenge Plate and £5 in cash given by the Suffolk Sheep Society for the best exhibit of Suffolk Sheep in Classes 289 to 294.

Class 293.—*Three Suffolk Shearling Ewes.*

2355 I. (£10.)—R. L. Barclay, Esq., C.B.E., Higham, Bury St. Edmunds.
2359 II. (£5.)—Williams F. Paul, Kirton Lodge, Kirton, Ipswich.
2357 III. (£3.)—Thomas Hatton, Anstey Pastures, Leicester.

Class 294.—*Three Suffolk Ewe Lambs.*

2366 I. (£10, & R. N. for Champion.[1])—G. A. Goodchild, Great Yeldham Hall, Castle Hedingham.
2365 II. (£5.)—G. R. C. Foster, Anstey Hall, Trumpington, Cambs.
2369 III. (£3.)—William F. Paul, Kirton Lodge, Kirton, Ipswich.
2372 IV. (£2.)—S. R. Sherwood, Playford, Ipswich.

Dorset Downs.

Class 295.—*Dorset Down Rams, Shearling and upwards.*

2376 I. (£10, & Champion.[2])—Robert N. Tory, Anderson, Blandford, for **Motto 6th**, born in 1923.
2373 II. (£5.)—Mrs. Lionel de Rothschild, Exbury, Southampton, for ram, born in 1923, bred by Lionel de Rothschild.
2375 III. (£3), & 2374 R. N.—P. and C. Seward, Weston, Petersfield, for rams, born in 1923.

Class 296.—*Dorset Down Ram Lambs.*[3]

2381 I. (£10.)—Robert N. Tory, Anderson, Blandford.
2377 II. (£5.)—Mrs. Lionel de Rothschild, Exbury, Southampton.
2378 III. (£3), & 2379 R. N.—P. and C. Seward, Weston, Petersfield.
H. C.—2380.

Class 297.—*Dorset Down Shearling Ewes.*

2382 I. (£10, & R. N. for Champion.[2])—Mrs. Lionel de Rothschild, Exbury, Southampton, for ewe, bred by Lionel de Rothschild.
2383 II. (£5.)—Robert N. Tory, Anderson, Blandford.

Dorset Horn.

Class 299.—*Dorset Horn Ram Lambs, born on or after November* 1, 1923.[4]

2386 I. (£10.)—Charles Morris, Highfield Hall, St. Albans, and Bishop's Lydeard.
2385 II. (£5.)—Awebridge & Co., Ltd., Northgrounds Farm, Chale, Isle of Wight, for **Awebridge 99.**

Class 300.—*Three Dorset Horn Shearling Ewes, born on or after November* 1, 1922.

2388 I. (£10.)—Charles Morris, Highfield Hall, St. Albans, and Bishop's Lydeard.
2387 II. (£5.)—Awebridge & Co., Ltd., Northgrounds Farm, Chale, Isle of Wight.

Wiltshire or Western Horn.

Class 301.—*Wiltshire or Western Horn Rams, Shearling and upwards.*

2395 I. (£10, & R. N. for Champion.[5])—William B. Southernwood, Gubblecote, Tring, for **Gubblecote Premier B 132**, born in 1922, bred by J. B. Morris & Sons, Hoggeston, Winslow.
2394 II. (£5.)—Randell Bros., Moulsoe Buildings Farm, Newport Pagnell, for **Trevor Invincible 251**, born in 1921, bred by W. H. Jones, Trevor Wen, Llansadwn, Menai Bridge.
2390 III. (£3.)—C. E. Berry, Middleton, Market Harborough, for **Norduck Rambler S 438**, born in 1923, bred by J. S. Roads, Norduck House, Aston Abbotts, Aylesbury.

Class 302.—*Three Wiltshire or Western Horn Shearling Ewes.*[6]

2401 I. (£10, & Champion.[5])—William B. Southernwood, Gubblecote, Tring.
2400 II. (£5.)—J. S. Roads, Norduck House, Aston Abbotts, Aylesbury.
2396 III. (£3.)—Charles E. Berry, Middleton, Market Harborough, for ewes, bred by Edmund Berry, Brampton Ash, Market Harborough.

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[1] Perpetual Challenge Plate and £5 in cash given by the Suffolk Sheep Society for the best exhibit of Suffolk Sheep in Classes 289 to 294.

[2] Champion Prize of £5 given by the Dorset Down Sheep Breeders' Association for the best exhibit of Dorset Down Sheep in Classes 295 to 297.

[3] Prizes given by the Dorset Down Sheep Breeders' Association.

[4] Prizes given by the Dorset Horn Sheep Breeders' Association.

[5] The "Brampton Ash" Silver Challenge Cup, value Ten Guineas, given through the Wiltshire or Western Horn Sheep Society for the best exhibit of Wiltshire or Western Horn Sheep in Classes 301 and 302.

[6] Prizes given by the Wiltshire or Western Horn Sheep Society.

Ryelands.

Class 303.—*Ryeland Rams, Two Shear and upwards.*

2402 **I.** (£10.)—F. H. Healing, Oldfield, Tewkesbury, for **Ashe Masterpiece 1306**, born in 1922, bred by T. L. Martin, Ashe Warren, Overton.
2405 **II.** (£5.)—David J. Thomas, Talachddu, Brecon, for **Talachddu Dominant 1122**, born in 1920.
2403 **III.** (£3.)—Mrs. R. Herbert-Huddleston, Clytha Park, Abergavenny, for **Clytha Norseman**, born in 1922.
2404 **R. N.**—Thomas L. Martin, Ashe Warren House, Overton, Hants, for **Ashe Monarch.**

Class 304.—*Ryeland Shearling Rams.*

2409 **I.** (£10.)—E. W. Langford, Ltd., Wye Bridge, Hereford.
2411 **II.** (£5.)—Thomas L. Martin, Ashe Warren House, Overton, Hants, for **Ashe Pride.**
2413 **III.** (£3.)—David J. Thomas, Talachddu, Brecon, for **Talachddu Guard.**
2414 **IV.** (£2.)—David J. Thomas, for **Talachddu Guide.**
2412 **R. N.**—Thomas L. Martin, for **Ashe Topper.**
H. C.—2408. **C.**—2406.

Class 305.—*Three Ryeland Ram Lambs.*

2420 **I.** (£10.)—E. W. Langford, Ltd. Wye Bridge, Hereford.
2422 **II.** (£5.)—Thomas L. Martin, Ashe Warren House, Overton, Hants.
2418 **III.** (£3.)—Hubert Groom, Warham, Wilts.
2419 **R. N.**—F. H. Healing, Oldfield, Tewkesbury.

Class 306.—*Three Ryeland Shearling Ewes.*

2426 **I.** (£10, & Champion.[1])—E. W. Langford, Ltd., Wye Bridge, Hereford.
2425 **II.** (£5, & R. N. for Champion.[1])—Mrs. R. Herbert-Huddleston, Clytha Park, Abergavenny.
2428 **III.** (£3.)—Thomas L. Martin, Ashe Warren House, Overton, Hants.
2429 **R. N.**—David J. Thomas, Talachddu, Brecon.
H. C.—2424.

Class 307.—*Three Ryeland Ewe Lambs.*

2434 **I.** (£10.)—E. W. Langford, Ltd., Wye Bridge, Hereford.
2436 **II.** (£5.)—Thomas L. Martin, Ashe Warren House, Overton, Hants.
2432 **III.** (£3.)—Hubert Groom, Warham, Wilts.
2433 **R. N.**—F. H. Healing, Oldfield, Tewkesbury.

Kerry Hill (Wales).

Class 308.—*Kerry Hill (Wales) Rams, Two Shear and upwards.*

2442 **I.** (£10.)—Mrs. E. Tate, Swinford Lodge, Rugby, for **Gwernygoe Chatterbox 8403**; born in 1922, bred by David Davies, M.P., Gwernygoe, Sarn, Newtown, Mont.
2439 **II.** (£5.)—E. D. Moore, Brampton Brian, Herefordshire, for **Pentrenant Prince 7189**, born in 1920, bred by W. V. Davies, Pentrenant, Churchstoke.
2441 **III.** (£3.)—Robert E. Parker, Easton, Norwich, for **Pentrenant Peach 7177**, born in 1920, bred by W. V. Davies, Pentrenant, Churchstoke.

Class 309.—*Kerry Hill (Wales) Shearling Rams.*

2444 **I.** (£10.)—Dinam Estates Company, Llandinam, Mont., for **Gwernygoe Dash.**
2451 **II.** (£5.)—Mrs. E. Tate, Swinford Lodge, Rugby, for **Swinford Hotspur.**
2452 **III.** (£3.)—The Duke of Westminster, G.C.V.O., D.S.O., Eaton Hall, Chester, for **Eaton Optimist.**
2450 **IV.** (£2.)—Robert E. Parker, Easton, Norwich, for **Eastern Newcastle.**
2446 **R. N.**—Lord Harlech, Brogyntyn, Oswestry, for **Brogyntyn Ranker.**

Class 310.—*Kerry Hill (Wales) Ram Lambs.*

2456 **I.** (£10.)—E. D. Moore, Brampton Brian, Herefordshire, for **Brampton Dominant.**
2458 **II.** (£5.)—Robert E. Parker, Easton, Norwich, for **Eastern Umbrella.**
2457 **III.** (£3.)—Robert E. Parker, for **Eastern Bovril.**
2455 **R. N.**—Lord Harlech, Brogyntyn, Oswestry.

Class 311.—*Kerry Hill (Wales) Shearling Ewes.*

2469 **I.** (£10.)—Mrs. E. Tate, Swinford Lodge, Rugby, for ewe, bred by J. C. Jones, Graig Llanfair, Welshpool.
2463 **II.** (£5.)—Lord Harlech, Brogyntyn, Oswestry.
2468 **III.** (£3.)—Mrs. E. Tate, for ewe, bred by J. Anwyl, Preston Brockhurst, Shrewsbury.
2471 **IV.** (£2.)—The Duke of Westminster, G.C.V.O., D.S.O., Eaton Hall, Chester.
2465 **R. N.**—E. D. Moore, Brampton Brian, Herefordshire.

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[1] Silver Challenge Cup given through the Ryeland Flock Book Society for the best exhibit of Ryeland Sheep in Classes 303 to 307.

Lincolns.

Class 312.—*Lincoln Two Shear Rams.*

2477 I. (£15, & Champion.[1])—Rawnsley & Tindall, Well Vale, Alford and Park House, Louth.
2474 II. (£10, & R. N. for Champion.[1])—Clifford Nicholson, Horkstow Manor, Barton-on-Humber.
2473 III. (£3.)—Thomas Campion, East Heslerton, York.

Class 313.—*Lincoln Shearling Rams.*

2488 I. (£10), & 2487 II. (£5.)—Rawnsley & Tindall, Well Vale, Alford, and Park House, Louth.
2485 III. (£3.)—Clifford Nicholson, Horkstow Manor, Barton-on-Humber, for Horkstow Manor Wembley.
2486 R. N.—Clifford Nicholson.

Class 314.—*Three Lincoln Shearling Rams.*[2]

2498 I. (£15.)—Rawnsley & Tindall, Well Vale, Alford, and Park House, Louth.
2497 II. (£10.)—Clifford Nicholson, Horkstow Manor, Barton-on-Humber.
2492 III. (£5.)—Thomas Campion, East Heslerton, York.

Class 315.—*Three Lincoln Ram Lambs.*

2504 I. (£10.)—Clifford Nicholson, Horkstow Manor, Barton-on-Humber.
2499 II. (£5.)—Ernest Addison, Riby Grange, Stallingboro'.
2505 III. (£3.)—Rawnsley & Tindall, Well Vale, Alford, and Park House, Louth.

Class 316.—*Three Lincoln Shearling Ewes.*

2509 I. (£10.)—Rawnsley & Tindall, Well Vale, Alford, and Park House, Louth.
2508 II. (£5.)—Clifford Nicholson, Horkstow Manor, Barton-on-Humber.

Class 317.—*Three Lincoln Ewe Lambs.*

2510 I. (£10.)—Ernest Addison, Riby Grange, Stallingboro'.
2514 II. (£5.)—Clifford Nicholson, Horkstow Manor, Barton-on-Humber.
2515 III. (£3.)—Rawnsley & Tindall, Well Vale, Alford, and Park House, Louth.

Leicesters.

Class 318.—*Leicester Shearling Rams.*

2518 I. (£10, & Champion [3]), & 2520 II. (£5.)—W. Jordan, Eastburn, Driffield.
2523 III. (£3.)—R. Megginson, Garton Field, Driffield.
2526 IV. (£2.)—C. H. Simpson & Sons, Castle House, Hunmanby, Yorks.
2517 R. N.—Wilfrid Appleyard, Flixton Manor, Scarborough.
H. C.—2519, 2524. C.—2525.

Class 319.—*Leicester Ram Lambs.*

2529 I. (£10), & 2530 R. N.—W. Jordan, Eastburn, Driffield.
2534 II. (£5.)—C. H. Simpson & Sons, Castle House, Hunmanby, Yorks.
2527 III. (£3).—Wilfrid Appleyard, Flixton Manor, Scarborough.
H. C.—2528.

Class 320.—*Leicester Shearling Ewes.*

2541 I. (£10, & R. N. for Champion [3]), & 2540 R. N.—R. Megginson, Garton Field, Driffield.
2537 II. (£5), & 2538 IV. (£2.)—W. Jordan, Eastburn, Driffield.
2542 III. (£3.)—C. H. Simpson & Sons, Castle House, Hunmanby, Yorks.
H. C.—2535. C.—2536, 2543.

Class 321.—*Leicester Ewe Lambs.*

2546 I. (£10), & 2547 III. (£3.)—W. Jordan, Eastburn, Driffield.
2551 II. (£5).—C. H. Simpson & Sons, Castle House, Hunmanby, Yorks.
2545 R. N.—Wilfrid Appleyard, Flixton Manor, Scarborough.
H. C.—2544.

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[1] Champion Prize of £5 given by the Lincoln Long-Wool Sheep Breeders' Association for the best Ram in Classes 312 and 313.

[2] Prizes given by the Lincoln Long-Wool Sheep Breeders' Association.

[3] Champion Silver Medal given by the Leicester Sheep Breeders' Association for the best exhibit of Leicester Sheep in Classes 318 to 321.

Wensleydales.

Class 326.—*Wensleydale Rams, Two Shear and upwards.*

2568 I. (£10.)—John Dargue, Burneside Hall, Kendal, for **Carperby Blue Prince**, born in 1922, bred by J. Hargrave, Wath, Ripon.
2565 II. (£5.)—John Allison, Howgrave Hall, Kirklington, Bedale, for ram, born in 1922, bred by J. W. Greensit, Holme-on-Swale, Thirsk.
2569 III. (£3.)—John W. Greensit, Holme-on-Swale, Thirsk, for **Holme Invincible**, born in 1922, bred by M. Burton, Sutton, Thirsk.
2567 R. N.—T. E. Clarke, Challan Hall, Silverdale, Lancs, for **Challan Cock Robin.**

Class 327.—*Wensleydale Shearling Rams.*

2579 I. (£10.)—John Percival, East House, Carperby, for ram, bred by Frank Foster Gallow Hill, Ripon.
2580 II. (£5.)—John Percival.
2570 III. (£3.)—John Allison, Howgrave Hall, Kirklington, Bedale.
2577 IV. (£2)—R. H. Milner, Borwick Lodge, Carnforth, for **Borwick Dreadnought.**
2576 R. N.—John Hargrave, Wath, Ripon.

Class 328.—*Three Wensleydale Shearling Rams.*

2583 I. (£10.)—John Percival, East House, Carperby, for ram, bred by John Hoggarth & Sons, Manor House, Slyne.
2582 II. (£5.)—John Hargrave, Wath, Ripon.
2581 III. (£3.)—John W. Greensit, Holme-on-Swale, Thirsk.

Class 329.—*Wensleydale Shearling Ewes.*

2586 I. (£10.)—John W. Greensit, Holme-on-Swale, Thirsk.
2592 II. (£5.)—John Percival, East House, Carperby.
2591 III. (£3.)—R. H. Milner, Borwick Lodge, Carnforth.
2584 IV. (£2.)—John Allison, Howgrave Hall, Kirklington, Bedale.
2588 R. N.—John Hargrave, Wath, Ripon.

Class 330.—*Wensleydale Yearling Ewes, shown in Wool.*[1]

2599 I. (£10.)—John Percival, East House, Carperby.
2598 II. (£5.)—R. H. Milner, Borwick Lodge, Carnforth.
2597 III. (£3.)—John Hargrave, Wath, Ripon.
2595 R. N.—T. E. Clarke, Challan Hall, Silverdale, Lancs.
H. C.—2594, 2596.

Kent or Romney Marsh.

Class 331.—*Kent or Romney Marsh Two Shear Rams.*

2602 I. (£10, & Champion.[2])—J. Egerton Quested, The Firs, Cheriton, Kent.
2601 II. (£5.)—The Earl of Guilford, Waldershare Park, Dover.
2604 III. (£3.)—Ashley Stevens, Davington Hall, Faversham, for **Luddenham.**
2600 R. N.—J. Rayner Betts, Greenhill, Otham, Maidstone, for **Quested's No. 310 of 1922.**

Class 332.—*Kent or Romney Marsh Shearling Rams.*

2620 I. (£10, & R. N. for Champion [2]), 2621 II. (£5) & 2619 III.(£3.)—J. Egerton Quested, The Firs, Cheriton, Kent.
2612 IV. (£2.)—The Earl of Guilford, Waldershare Park, Dover.
2622 V. (£1.)—Ashley Stevens, Davington Hall, Faversham.
2617 R. N.—Clifford Nicholson, Horkstow Manor, Barton-on-Humber.
H. C.—2627. C.—2623.

Class 333.—*Three Kent or Romney Marsh Shearling Rams.*[3]

2638 I. (£20), & 2637 II. (£15.)—J. Egerton Quested, The Firs, Cheriton, Kent.
2633 III. (£10), & 2632 IV. (£5.)—The Earl of Guilford, Waldershare Park, Dover.
2639 V. (£1.)—Ashley Stevens, Davington Hall, Faversham.
2630 R. N.—H. E. Bennett, Hawkenbury, Staplehurst.
H. C.—2628. C.—2641.

Class 334.—*Three Kent or Romney Marsh Ram Lambs.*

2648 I. (£10), & 2647 II. (£5.)—J. Egerton Quested, The Firs, Cheriton, Kent.
2643 III. (£3.)—H. E. Bennett, Hawkenbury, Staplehurst.
2645 R. N.—The Earl of Guilford, Waldershare Park, Dover.
H. C.—2644.

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[1] Prizes given by the Wensleydale Long-Wool Sheep Breeders' Association.

[2] Champion Prize of £10 10*s*. given by the Kent or Romney Marsh Sheep Breeders' Association for the best Ram in Classes 331 and 332.

[3] Prizes, except Fifth, given by the Kent or Romney Marsh Sheep Breeders' Association.

Class 335.—*Three Kent or Romney Marsh Shearling Ewes.*

2658 I. (£10, & Champion [1]), & 2657 II. (£5, & R. N. for Champion.[1])—J. Egerton Quested, The Firs, Cheriton, Kent.
2655 III. (£3.)—Clifford Nicholson, Horkstow Manor, Barton-on-Humber.
2653 IV. (£2.)—The Earl of Guilford, Waldershare Park, Dover.
2654 R. N.—S. W. Millen, Copton Manor, Faversham.
H. C.—2652.

Class 336.—*Three Kent or Romney Marsh Ewe Lambs.*

2663 I. (£10), and 2664 R. N.—J. Egerton Quested, The Firs, Cheriton, Kent.
2661 II. (£5), & 2662 III. (£3.)—The Earl of Guilford, Waldershare Park, Dover.
H. C.—2659.
Cup.[2]—J. Egerton Quested.
R. N. for Cup.[2]—The Earl of Guilford.

Cotswolds.

Class 337.—*Cotswold Shearling Rams.*

2668 I (£10), 2666 II. (£5), & 2667 III. (£3.)—William Garne, Ablington, Fairford, Glos.

Class 338.—*Cotswold Ram Lambs.*

2669 I. (£10), 2671 II. (£5), & 2670 III. (£3.)—William Garne, Ablington, Fairford, Glos.

Class 339.—*Cotswold Shearling Ewes.*

2672 I. (£10), 2674 II. (£5), & 2673 III. (£3.)—William Garne, Ablington, Fairford, Glos.

Class 340.—*Cotswold Ewe Lambs.*

2676 I. (£10), 2675 II. (£5), & 2677 III. (£3.)—William Garne, Ablington, Fairford, Glos.

Devon Long-wools.

Class 341.—*Devon Long-Wool Shearling Rams.*

2678 I. (£10), & 2679 II. (£5.)—Frederick White, Torweston, Williton, Somerset.

Class 342.—*Devon Long-Wool Shearling Ewes.*

2681 I. (£10), & 2680 II. (£5.)—Frederick White, Torweston, Williton, Somerset.

South Devons.

Class 344.—*South Devon Shearling Rams.*

2687 I. (£10), & 2686 II. (£5.)—William Hawke, Bosoughan Colan, St. Columb, Cornwall.

Class 345.—*South Devon Ram Lambs.*[3]

2691 I. (£10.)—William Hawke, Bosoughan Colan, St. Columb, Cornwall.

Class 346.—*South Devon Shearling Ewes.*

2692 I. (£10), 2693 II. (£5), & 2694 III. (£3.)—William Hawke, Bosoughan Colan, St. Columb, Cornwall.

Lonks.

Class 347.—*Lonk Rams, Shearling and upwards.*

2697 I. (£10.)—Edward Smith, Summerhouse Farm, Cowling, Keighley, for **Summerhouse Major**, born in 1919, bred by G. Hall, Mount Pleasant, Oxenhope.
2695 II. (£5.)—Thomas Brayshaw, Dean Farm, Portsmouth, Todmorden, for **Blackshaw Duke**, born in 1923, bred by Edward Feather, Blackshaw, Hebden Bridge.
2696 III. (£3.)—Thomas Brayshaw, for **Mill Top Swell**, born in 1921, bred by Miss A. Redman, Pecket, Hebden Bridge.

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[1] Champion Prize of £10 10*s*. given by the Kent or Romney Marsh Sheep Breeders' Association for the best Pen of Ewes or Ewe Lambs in Classes 335 and 336.

[2] Silver Challenge Cup, value Forty Guineas, given through the Kent or Romney Marsh Sheep Breeders' Association, for the best group of Sheep, bred by Exhibitor, consisting of Two Shear Rams, Shearling Ram, Pen of Three Ram Lambs, Pen of Three Shearling Ewes and Pen of Three Ewe Lambs, in Classes 331, 332, 334, 335 and 336.

[3] Prizes given by the South Devon Flock Book Association.

Class 348.—*Lonk Shearling Ewes.*

2700 I. (£10), & 2698 II. (£5))—Edward Smith, Summerhouse Farm, Cowling, Keighley.
2702 III. (£3.)—Alfred Taylor, Prince Bank Farm, Lumb-in-Rossendale, for ewe, bred by Joseph Gott, Colne.
H. C.—2699, 2701.

Dartmoors.

Class 357.—*Dartmoor Rams, Shearling and upwards.*

2724 I. (£10.)—John H. Glover, Delamore Farm, Cornwood, Devon, for Princetown Ball 2777, born in 1922, bred by the Directors of H.M. Prison, Princetown.

Class 358.—*Dartmoor Shearling Ewes.*

2725 II. (£5.)—Henry J. Kingwell, Bow Grange, Totnes, for Duchess.

Cheviots.

Class 359.—*Cheviot Rams, Two Shear and upwards.*

2726 I. (£10.)—J. T. and J. J. Dodd, Riccarton, Newcastleton, for ram, born in 1921.

Class 360.—*Cheviot Shearling Rams.*

2727 I. (£10.)—J. T. and J. J. Dodd, Riccarton, Newcastleton.

Black-Faced Mountain.

Class 362.—*Black-faced Mountain Rams, Two Shear and upwards.*

2728 I. (£10.)—Octavius Monkhouse, Cowshill, Wearhead, Co. Durham, for Sunbeam 208, born in 1921.
2729 II. (£5.)—Octavius Monkhouse, for Sunshine 125, born in 1920.

Class 363.—*Black-faced Mountain Shearling Rams.*

2731 I. (£10.)—Octavius Monkhouse, Cowshill, Wearhead, for Lodstar 1st, bred by T. Cadzow, Greens.
2733 II. (£5.)—Octavius Monkhouse, for Prince of Horsley, bred by Mr. Henderson, Wilshaw.
2732 III. (£3.)—Octavius Monkhouse, for Midnight.

Class 364.—*Black-faced Mountain Shearling Ewes.*

2734 I. (£10.) Octavius Monkhouse, Cowshill, Wearhead, for Beauty's Queen.
2735 II. (£5.)—Octavius Monkhouse, for Pansy Blossom.
2736 III. (£3.)—Octavius Monkhouse, for Princess Mary.

Welsh Mountain.

Class 365.—*Welsh Mountain Rams, Shearling and upwards.*

2737 I. (£10.)—Major J. J. P. Evans, Cwmerau, Glandyfi, Cardiganshire, for Plynlimon Nimrod 1350, born in 1921, bred by Major E. J. W. Platt, Madryn Farm, Aber.

Black Welsh Mountain.

Class 367.—*Black Welsh Mountain Shearling Rams.*

2755 I. (£10.)—Mrs. Jervoise, Herriard Park, Basingstoke.
2753 II. (£5), & 2752 III. (£3.)—Alfred E. W. Darby, Adcote, Shrewsbury.
2757 R. N.—Major-General Lord Treowen, C.B., C.M.G., Llanover, Abergavenny, for Llanover Samson.
H. C.—2756.

Class 368.—*Black Welsh Mountain Shearling Ewes.*[1]

2761 I. (£10.)—Mrs. Jervoise, Herriard Park, Basingstoke.
2759 II. (£5), & 2758 III. (£3).—Alfred E. W. Darby, Adcote, Shrewsbury.
2763 R. N.—Major-General Lord Treowen, C.B., C.M.G., Llanover, Abergavenny.
H. C.—2762.

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[1] Prizes given by the Black Welsh Mountain Sheep Breeders' Association.

PIGS.

Large Whites.

Class 369.—*Large White Boars, born in or before* 1922.

2773 **I.** (£10, Champion,[1] & Champion.[2])—EDMUND WHERRY, Bourne, Lincs, for **Bourne King David** 36437 (T.N. 4402), born July 1, 1921; *s.* Bourne King John 26091, *d.* Bourne Queen 26th 65034 *by* Bourne Bar-None 20847.

2768 **II.** (£5.)—SIR GILBERT GREENALL, BT., C.V.O., Walton Hall, Warrington, for **Boxted Turk** 33117 (T.N. 187), born Jan. 30, 1921, bred by the Essex County Council, Boxted; *s.* Turk of Bottesford 27417, *d.* Jewel of Boxted 60002 *by* Bonnie Bourne 22029.

2765 **III.** (£3.)—BIRCH & BULMER, High Street, Spalding, for **Welland Jay** (T.N. 30), born July 2, 1922; *s.* Bob of Bourne 28701, *d.* Pode Hole Perfection 80292 *by* Hercules of Walton 14th 26651.

2775 **IV.** (£2.)—W. WHITE & SONS, Pool Farm, Taunton, for **Spalding Signal** 34103 (T.N. 1001), born Jan. 3, 1921, bred by A. W. White, Hillegom, Spalding; *s.* Kingmaker 24151, *d* Spalding Queen Mary 5th 61232 *by* Banner of Spalding 21987.

2764 **V.** (£1.)—AGRAR, LTD., Wallington Manor, Baldock, for **Taunton Emperor 2nd** 37751 (T.N. 258), born Jan. 2, 1922, bred by W. White & Sons, Taunton; *s.* Taunton Emperor 34227, *d.* Taunton Amy 5th 81428 *by* Histon Snowman 24047.

2771 **R. N.**—FRED SAUNDERS, Great Finborough, Stowmarket, for **Oakdene Count.**

H. C.—2769. **C.**—2772.

Class 370.—*Large White Boars, born in* 1923, *before July* 1.

2789 **I.** (£10.)—GEORGE PAYNE, The Wentworth, Elmesthorpe, Leicester, for **Wentworth Lion** (T.N. 25), born Jan. 14; *s.* Bourne Bar-None 208th 36311, *d.* Bourne Queen Anne 12th 88992 *by* Bourne Bandmaster 50th 22071.

2787 **II.** (£5.)—ARTHUR H. MUSSON, Kingscroft, Peterbrook Road, Yardley Wood, Birmingham, for **Banner of Peterbrook** (T.N. 2981), born Jan. 19, bred by R. P. Haynes, Delves Green Farm, Wednesbury; *s.* Banner of Caldmore 25879, *d.* Dalmeny Maid 66256 *by* Dalmeny Major 26319.

2792 **III.** (£3.)—ALFRED W. WHITE, Hillegom, Spalding, for **Spalding Monitor 9th** (T.N. 3006), born Jan. 4; *s.* Spalding Monitor 4th 37643, *d.* Histon Bell 38th 90762 *by* Histon Eastern Turk 26683.

2791 **IV.** (£2.)—EDMUND WHERRY, Bourne, Lincs, for **Bourne Bar-None 272nd** (T.N. 5047), born Jan. 5; *s.* Bourne Bar-none 125th 28835, *d.* Bourne Bonetta 64892 *by* Bourne Bandmaster 50th 22071.

2781 **V.** (£1.)—W. HALLAS, Bank House Farm, Helsby, Warrington, for **Hallastone Ransom** (T.N. 284), born Jan. 29; *s.* Blaze of Hallastone 36249, *d.* Mary of Helsby 2nd 68534 *by* Bourne Emperor 24th 26075.

2782 **R. N.**—F. H. HAMPSHIRE, Upperthong, Holmfirth, for **Kitchener of Holmfirth.**

H. C.—2780.

Class 371.—*Large White Boars, born in* 1923, *on or after July* 1.[3]

2813 **I.** (£10, & R. N. for Champion.[1])—EDMUND WHERRY, Bourne, Lincs, for **Bourne King David 20th** (T.N. 5274), born July 1; *s.* Bourne King David 36437, *d.* Bourne Bonetta 7th 76952 *by* Baron of Bourne 28633.

2814 **II.** (£5.)—EDMUND WHERRY, for **Bourne King David 22nd** (T.N. 5276), born July 1; *s.* Bourne King David 36437, *d.* Bourne Bonetta 7th 76952 *by* Baron of Bourne 28633.

2806 **III.** (£3.)—ERNEST HARDING, Packwood Grange, Dorridge, Birmingham, for **Bourne King David 25th** (T.N. 5279), born July 1, bred by E. Wherry, Bourne; *s.* Bourne King David 36437, *d.* Bourne Bonetta 7th 76952 *by* Baron of Bourne 28633.

2803 **IV.** (£2.)—SIR GILBERT GREENALL, BT., C.V.O., Walton Hall, Warrington, for **Walton Bandmaster 2nd** (T.N. 361), born July 17; *s.* Crewe Bandmaster 33315, *d.* Amy of Crimwell 88318 *by* Helsby Turk 26621.

2793 **V.** (£1.)—AGRAR, LTD., Wallington Manor, Baldock, for **Wallington Adonis 5th** (T.N. 346), born July 2; *s.* Taunton Emperor 2nd 27751, *d.* Bourne Mable 30th 88964 Bourne Bar-None 125th 28835.

2794 **R. N.**—AGRAR, LTD., for **Wallington Adonis 7th.**

H. C.—2804.

Class 372.—*Large White Boars, born in* 1924.

2845 **I.** (£10.)—EDMUND WHERRY, Bourne, Lincs, for **Bourne King David 52nd** (T.N. 5499), born Jan. 5; *s.* Bourne King David 36437, *d.* Worsley Lady 32nd 62208 *by* Jay of Worsley 14th 16147.

2835 **II.** (£5.)—ROWLAND P. HAYNES, Delves Green Farm, Wednesbury, for boar (T.N. 5935), born Jan. 1, bred by the Committee, Whittingham Asylum, Preston; *s.* Bourne Bar-None 162nd 33041, *d.* Primrose of Whittingham 92024 *by* Wyboston Turk 35th 25053.

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[1] Champion Gold Medal, value £5 5*s.*, given by the National Pig Breeders' Association for the best Large White Boar in Classes 369 to 372.

[2] Silver Challenge Cup, value Thirty Guineas, given by the National Pig Breeders' Association for the best Large White Pig in Classes 369 to 375.

[3] Prizes, except Fourth and Fifth, given by the National Pig Breeders' Association.

2846 III. (£3.)—Edmund Wherry, for **Bourne King David 53rd** (T.N. 5500), born Jan. 5; *s.* Bourne King David 36437, *s.* Worsley Lady 32nd 62208 *by* Jay of Worsley 14th 16147.
2836 IV. (£2.)—Rex Howkins, Clifton Reynes, Olney, Bedford, for **Clifton Romance** (T.N. 105), born Jan. 5; *s.* Sundon Roman 30577, *d.* Sundon Patricia 61426 *by* Turk of Sundon 21435.
2825 V. (£1.)—John E. B. Cowper, Gogar Mains, Corstorphine, Edinburgh, for **Gogar Knight** (T.N. 241), born Jan. 3; *s.* Bourne Bar-none 231st 36333, *d.* Dalmeny Jipsey 66216 *by* Bourne Emperor 25th 26077.
2832 R. N.—W. Hallas, Bank House Farm, Helsby, Warrington, for **Hallastone Bosco 3rd.**
H. C.—2821. C.—2843.

Class 373.—*Large White Breeding Sows, born in or before* 1922.

2872 I. (**£10, R. N. for Champion,[1] & Champion.[2]**)—Edmund Wherry, Bourne, Lincs, for **Bourne Lady Superior** 88958 (T.N. 4464), born July 10, 1921, farrowed Jan. 30; *s.* Bourne Bar-None 125th 28835, *d.* Worsley Lady 32nd 62208 *by* Jay of Worsley 14th 16147.
2860 II. (£5.)—Captain R. S. Hall, New Hall, Tendring, Clacton-on-Sea, for **Newhall Perfection** 91722 (T.N. 267), born Jan. 19, 1922, farrowed March 2; *s.* Bourne Bar-None 112th 28827, *d.* Newhall Mary 2nd 68874 *by* Turk of Tendring 22849.
2874 III. (£3.)—W. White & Sons, Pool Farm, Taunton, for **Taunton Amy 1st** 81422 (T.N. 133), born July 2, 1920, farrowed Jan. 25; *s.* Histon Snowman 24047, *d.* Histon Amy 6th 59812 *by* Histon Lion Heart 22481.
2862 IV. (£2.)—Frank W. Hickton, Belbroughton, Stourbridge, for **Brookfield Jewel 60th** (T.N. 582), born Jan. 24, 1922, farrowed Jan. 5; *s.* Lionel Hollingsworth of Brookfield 29953, *d.* Jewel of Brookfield 60004 *by* Bonnie Bourne 22029.
2851 V. (£1.)—Birch & Bulmer, High Street, Spalding, for **Podehole Perfection** 80292 (T.N. 49), born March 2, 1920, farrowed Jan. 6, bred by Eric Lane, Podehole; *s.* Hercules of Walton 14th 26651, *d.* Walton Perfection 6th 55654 *by* Worsley Jay 35th 20419.
2853 R. N.—Chivers & Sons, Ltd., Histon, Cambridge, for **Histon Amy 5th.**
H. C.—2873. C.—2870.

Class 374.—*Large White Sows, born in* 1923, *before July* 1.

2903 I. (**£10, & R. N. for Champion.[2]**)—Edmund Wherry, Bourne, Lincs, for **Bourne Bonetta 27th** (T.N. 5017), born Jan. 1; *s.* Bourne Champion Boy 33091, *d.* Bourne Bonetta 6th 76950 *by* Baron of Bourne 28633.
2887 II. (£5.)—Sir Gilbert Greenall, Bart., C.V.O., Walton Hall, Warrington, for **Sunshine of Walton 3rd** (T.N. 136), born Jan. 3, bred by Wm. Stirzaker, Manor House Farm, Poulton-le-Fylde; *s.* Walton Baronet 2nd 34355, *d.* Mains Sunshine 13th 79690 *by* Mains Turk 29975.
2890 III. (£3.)—F. H. Hampshire, Upperthong, Holmfirth, for **Buttercup of Holmfirth** (T.N. 554), born Jan. 29, bred by D. R. Daybell, Bottesford; *s.* Monitor of Bottesford 33851, *d.* Bottesford Buttercup 41st 64830 *by* Worsley Jay 37th 27619.
2905 IV. (£2.)—W. White & Son, Pool Farm, Taunton, for **Taunton Amy 39th** (T.N. 380), born Jan. 6; *s.* Caldmore Jay 36575, *d.* Taunton Amy 12th 93090 *by* Taunton Araby 3rd 27325.
2876 V. (£1.)—Birch & Bulmer, High Street, Spalding, for **Welland Queen 3rd** (T.N. 81), born Jan. 5; *s.* Mill Green Hercules 30071, *d.* Peakirk Queen 60826 *by* Old George 22631.
2888 R. N.—Sir Gilbert Greenall, Bart., C.V.O., for **Sunshine of Walton 4th.**
H. C.—2892. C.—2889.

Class 375.—*Large White Sows, born in* 1923, *on or after July* 1.

2930 I. (£10.)—Edmund Wherry, Bourne, Lincs, for **Bourne Bonetta 43rd** (T.N. 5282), born July 1; *s.* Bourne King David 36437, *d.* Bourne Bonetta 7th 76952 *by* Baron of Bourne 28633.
2916 II. (£5.)—Sir Gilbert Greenall, Bart., C.V.O., Walton Hall, Warrington, for **Walton Amy 5th** (T.N. 364), born July 17; *s.* Crewe Bandmaster 33315, *d.* Amy of Crimwell 88318 *by* Helsby Turk 26621.
2929 III. (£3.)—Edmund Wherry, for **Bourne Bonetta 42nd** (T.N. 5281), born July 1; *s.* Bourne King David 36437, *d.* Bourne Bonetta 7th 76952 *by* Baron of Bourne 28633.
2932 IV. (£2.)—Grosvenor Workman, The Hayes, Redditch Road, Northfield, Birmingham, for **Bannerthorpe Beauty** (T.N. 111), born July 10; *s.* Banner of Brookfield, *d.* Cutthorpe Lady Beauty 2nd 77948 *by* Turk of Cutthorpe 30709.
2908 V. (£1.)—Agrar Ltd., Wallington Manor, Baldock, for **Wallington Cleopatra 8th** (T.N. 351), born July 2; *s.* Taunton Emperor 2nd 37751, *d.* Bourne Mabel 30th 88964 *by* Bourne Bar-None 125th 28835.
2910 R. N.—The Dowager Lady Burton, Rangemore, Burton-on-Trent, for **Rangemore Surprise 4th.**
H. C.—2920. C.—2917.

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[1] Silver Challenge Cup, value Thirty Guineas, given by the National Pig Breeders' Association for the best Large White Pig in Classes 369 to 375.

[2] Champion Gold Medal, value £5 5s., given by the National Pig Breeders' Association, for the best Large White Sow in Classes 373 to 375.

Class 376.—*Two Large White Sows, born in* 1924.

2952 **I. (£10.)**—Edmund Wherry, Bourne, Lincs, for sows, born Jan. 5; *s.* Bourne King David 36437, *d.* Worsley Lady 32nd 62208 *by* Jay of Worsley 14th 16147.

2939 **II. (£5.)**—Sir Gilbert Greenall, Bart., C.V.O., Walton Hall, Warrington, for **Walton Sunshine 3rd and 4th**, born Jan. 6; *s.* Nonsuch of Walton 2nd, *d.* Sunshine of Walton *by* Shipley Major 30411.

2944 **III. (£3.)**—Rex Howkins, Clifton Reynes, Olney, Bedford, for sows, born Jan. 5; *s.* Sundon Roman 30577, *d.* Sundon Patricia 61426 *by* Turk of Sundon 21435.

2936 **IV. (£2.)**—John E. B. Cowper, Gogar Mains, Corstorphine, Edinburgh, for **Gogar Stella and Gogar Stella 2nd**, born Jan. 3; *s.* Bourne Bar-None 231st 36333, *d.* Dalmeny Jipsey 66216 *by* Bourne Emperor 25th 26077.

2949 **V. (£1.)**—John Neaverson, The Chestnuts, Peakirk, Peterboro', for sows, born Jan. 2; *s.* Welland Bob, *d.* Whittingham Miss Hollinsgworth 2nd 81742 *by* Sundon Turk 27303.

2955 **R. N.**—W. White & Sons, Pool Farm, Taunton, for **Taunton Lady Amys 1st and 2nd.**

H. C.—2954. **C.**—2934.

Middle Whites.

Class 377.—*Middle White Boars, born in or before* 1922.

2962 **I. (£10, & R. N. for Champion.[1])**—Chivers & Sons, Ltd., Histon, Cambridge, for **Wratting Woodman 35957** (T.N. 2), born June 18, 1921, bred by F. Sainsbury, Blunts Hall, Haverhill; *s.* Histon Woodman 28099, *d.* Histon Choice 19th 84576 *by* Shrewsbury 19511.

2977 **II. (£5.)**—Mrs. John G. Peel, Peover Hall, Knutsford, for **Histon Wanderer 4th 38843** (T.N. 164), born Aug. 18, 1921, bred by John Chivers, Wychfield; *s.* Histon Wanderer 25349, *d.* Histon Pride 48418 *by* Shrewsbury 19511.

2970 **III. (£3.)**—W. B. Hill, Fair View Farm, Wednesfield, for **Prestwood Peter Pan 39293** (T.N. 328), born July 2, 1921; *s.* Salopian of Prestwood 32315, *d.* Prestwood Pansy 14th 74734 *by* First of Caldmore 28027.

2957 **IV. (£2.)**—Misses Bailey, Tudor House, Romsley, Bridgnorth, for **Shatterford Sahib 39419** (T.N. 55), born July 22, 1921; *s.* Castlecroft Athlete 34785, *d.* Joan of Shatterford 73692 *by* Scotty of Prestwood 25533.

2971 **V. (£1.)**—Major J. H. Hind, Kingcomb Herd, Chipping Campden, for **Norsbury Woodman 3rd** (T.N. 388), born July 19, 1922, bred by Mrs. Hayes Sadler, Norsbury, Sutton Scotney; *s.* Norsbury Woodman 35461, *d.* Norsbury Virtue 63292 *by* Durbar of Histon 21679.

2972 **R. N.**—Major Arthur J. Holloway, Penn Court, Wolverhampton, for **Norsbury Vaughan.**

H. C.—2981.

Class 378.—*Middle White Boars, born in* 1923, *before July* 1.

2986 **I. (£10, Champion,[1] & R. N. for Champion.[2])**—Dr. T. L. Bonar, Preston Hall, Aylesford, for **Ayle Robin** (T.N. 35), born Jan. 8; *s.* Norsbury Vaughan 39201, *d.* Norsbury Constance 86026 *by* Robin of Norsbury 32311.

2997 **II. (£5.)**—Leopold C. Paget, Middlethorpe Hall, York, for **Illuminator of Wharfedale** (T.N. 297), born Jan. 8, bred by South Yorkshire Asylum, Middlewood, Sheffield; *s.* Wharncliffe Prince 32625, *d.* Violet of Wharncliffe 87618 *by* Dividend of Wharfedale 20511.

2987 **III. (£3.)**—Dr. T. L. Bonar, for **Ayle Woodman 3rd** (T.N. 84), born March 1; *s.* Norsbury Woodman 35461, *d.* Biddenden Beatrice 6th 82508 *by* Keston Victor of Biddenden 28129.

2993 **IV. (£2.)**—Rowland P. Haynes, Delves Green Farm, Wednesbury, for **Parkfield Sidney**, born Jan. 18, bred by G. B. Parkes, Quinton, Birmingham; *s.* Shatterford Sidney 39423, *d.* Shatterford Annie 4th 100146 *by* Castlecroft Athlete 34785.

2999 **V. (£1.)**—G. B. Parkes, Parkfield, Quinton, Birmingham, for **Parkfield Sidney 2nd** (T.N. 44), born Jan. 18; *s.* Shatterford Sidney 39423, *d.* Shatterford Annie 4th 100146 *by* Castlecroft Athlete 34785.

3000 **R. N.**—Charles Spencer, Milpond, Little Oakley, Harwich, for **Holywell Guardsman.**

H. C.—3004.

Class 379.—*Middle White Boars, born in* 1923, *on or after July* 1.[3]

3032 **I. (£10.)**—Mrs. John G. Peel, Peover Hall, Knutsford, for **Peover Invader** (T.N. 506), born July 2; *s.* Hammonds Hermes 31651, *d.* Peover Flighty 99518 *by* Wharncliffe Rob Roy 32623.

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[1] Champion Gold Medal, value £5 5*s.*, given by the National Pig Breeders' Association for the best Middle White Boar in Classes 377 to 380.

[2] Silver Challenge Cup, value Thirty Guineas, given by the National Pig Breeders' Association for the best Middle White Pig in Classes 377 to 383.

[3] Prizes, except Fourth, given by the National Pig Breeders' Association.

3024 II. (£5.)—W. B. HILL, Fair View Farm, Wednesfield, Staffs, for **Prestwood Wanderer** (T.N. 802), born Aug. 12; *s.* Wanderer of Prestwood, *d.* Shatterford Yvonne 6th 100220 *by* David of Shatterford 34863.

3030 III. (£3.)—NEW TOWN AGRICULTURAL GUILD, LTD., Welwyn Garden City, Herts, for **Welwyn Janus 2nd** (T.N. 52), born July 2; *s.* Annables Joseph 38139, *d.* Welwyn Anne 101364 *by* Sundon Thunderer 35805.

3033 IV. (£2.)—CHARLES SPENCER, Milpond, Little Oakley, Harwich, for boar (T.N. 564), born July 1; *s.* Histon Milpond 35161, *d.* Holywell Milpond Missie 2nd 73564 *by* Hillman of Harthay 25329.

3008 R. N.—MISSES BAILEY, Tudor House, Romsley, Bridgnorth, for **Shatterford Sahib 2nd.**
H. C.—3023.

Class 380.—*Middle White Boars, born in* 1924.

3066 I. (£10.)—MRS. D. REEVE, Mortimer's Ashdown, Saffron Walden, for **Walden Tarzan** (T.N. 22), born Jan. 10; *s.* Royalist of Walden, *d.* Pride of Walden *by* Johnsons Prince.

3047 II. (£5.)—CHIVERS & SONS, LTD., Histon, Cambridge, for **Histon Rover 53rd** (T.N. 722), born Jan. 14; *s.* Histon Rover 28075, *d.* Histon Joan 9th 97286 *by* Histon Woodman 28099.

3044 III. (£3.)—DR. T. L. BONAR, Preston Hall, Aylesford, for **Ayle Kim** (T.N. 264), born Jan. 2; *s.* Histon Baron 12th, *d.* Burningfold Peaceful 4th 94912 *by* Hammonds Hermes 31651.

3061 IV. (£2.)—VISCOUNT LEWISHAM and MAJOR W. LLEWELLEN PALMER, Godmersham Park, Canterbury, for **Godmersham Apollo 5th** (T.N. 662), born Jan. 8; *s.* Apollo of Wharfedale, *d.* Histon Rosebud 13th 84712 *by* Histon Shrewsbury 2nd 28081.

3071 V. (£1.)—J. A. H. STANSFELD, Bates Farm, Wittersham, Kent, for boar (T.N. 536), born Jan. 3; *s.* Wharncliffe Prince 32625, *d.* Oxney Choice 2nd 86332 *by* Midlothian Rover 32075.

3059 R. N.—ROWLAND P. HAYNES, Delves Green Farm, Wednesbury, for **Caldmore Bobs.**
H. C.—3056.

Class 381.—*Middle White Breeding Sows, born in or before* 1922.

3082 I. (£10, & R. N. for Champion.[1])—CHIVERS & SONS, LTD., Histon, Cambridge, for **Histon Welcome 19th** 84738 (T.N. 949), born Sept. 25, 1920, farrowed Jan. 28, bred by J. Chivers, Wychfield; *s.* Shrewsbury 19511, *d.* Welcome Histon 51900 *by* Sundon Scott 20599.

3101 II. (£5.)—LEOPOLD C. PAGET, Middlethorpe Hall, York, for **Wharfedale Royal Lady** 75956 (T.N. 980), born Jan. 7, 1920, farrowed March 12; *s.* Preserver of Wharfedale 25493, *d.* Wharfedale Opal 57442 *by* Pendley Lad 23191.

3081 III. (£3.)—W. T. B. CARTRIDGE, Sidbury, Worcester, for **Sidbury Cleopatra** 87204 (T.N. 116), born July 15, 1921, farrowed Jan. 9; *s.* Pendley Swell 32183, *d.* Violet of Beenham 57284 *by* Hammonds Moonbeam 21691.

3078 IV. (£2.)—K. D. BRIGGS, Robins End, Tenbury Wells, for **Neuburie Aquilegia** 99030 (T.N. 5), born Aug. 2, 1922, farrowed Feb. 7, bred by Captain Angier, Newbury; *s.* Wharfedale Hector 35879, *d.* Henley Amy 73284 *by* Hope of Hammonds 25361.

3098 V. (£1.)—THE VISITING COMMITTEE, CITY OF LONDON MENTAL HOSPITAL, Stone, Dartford, for **Pullington Jay** 74844 (T.N. 68), born Aug. 17, 1920, farrowed March 27, bred by R. A. T. Mitchison, Biddenden; *s.* Wharfedale Jamieson 3rd 28341, *d.* Horden Joyce 56792 *by* Sundon M.E.E. 23231.

3097 R. N.—THOMAS KEMP, Cogshall Hall, Northwich, for **Morpeth Jewel.**
H. C.—3103.

Class 382.—*Middle White Sows, born in* 1923, *before July* 1.

3113 I. (£10, Champion,[2] & Champion.[1])—DR. T. L. BONAR, Preston Hall, Aylesford for **Ayle Flapper 8th** (T.N. 96), born March 19; *s.* Kenil Oarsman 35279, *d.* Peene Flapper 6th 99442 *by* Mick of Peene 32063.

3140 II. (£5.)—R. A. S. MITCHISON, Pullington, Benenden, Cranbrook, for **Pullington Pamela** (T.N. 302), born Jan. 1; *s.* Sunhill Swell 35807, *d.* Horden Patricia 56804 *by* Sundon M.E.E. 23231.

3107 III. (£3.)—JAMES T. BARNBY (South Yorks Asylum Committee), Middlewood, Sheffield, for **Wharncliffe Matilda** (T.N. 302), born Jan. 8; *s.* Wharncliffe Prince 32625, *d.* Violet of Wharncliffe 87618 *by* Dividend of Wharfedale 20511.

3112 IV. (£2.)—DR. T. L. BONAR, for **Ayle Flapper 7th** (T.N. 95), born March 19; *s.* Kenil Oarsman 35279, *d.* Peene Flapper 6th 99442 *by* Mick of Peene 32063.

3146 V. (£1.)—MRS. SOFER WHITBURN, Amport St. Marys, Andover, for **Amport Bella 14th** (T.N. 385), born March 2; *s.* Scotty of Norsbury, *d.* Addington Bella 7th 93942 *by* Adventurer of Addington 27749.

3149 R. N.—CHARLES SPENCER, Milpond, Little Oakley, Harwich, for **Holywell Peerless 2nd.**
H. C.—3128, 3129.

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[1] Champion Gold Medal, value £5 5*s.*, given by the National Pig Breeders' Association for the best Middle White Sow in Classes 381 to 383.

[2] Silver Challenge Cup, value Thirty Guineas, given by the National Pig Breeders' Association for the best Middle White Pig in Classes 377 to 383.

Class 383.—*Middle White Sows, born in* 1923, *on or after July* 1.

3162 I. (£10.)—Commander and Mrs. Boulnois, The Navy Pig Farm, Yateley, Hants, for **Yateley Harpy** (T.N. 140), born July 1; *s.* Salopian of Prestwood 32315, *d.* Beenham Halfa 3rd 71820 *by* Hope of Hammonds 25361.

3154 II. (£5.)—Brig.-Gen. B. Atkinson, C.B., C.M.G., Mistley Hall, Manningtree, for **Mistley Garland 66th** (T.N. 1216), born July 17; *s.* Olim of Mistley, *d.* Mistley Garland 6th 98810 *by* Wharfedale Frost 32579.

3161 III. (£3.)—Dr. T. L. Bonar, Preston Hall, Aylesford, for **Ayle Flapper 9th** (T.N. 263), born Oct. 9; *s.* Kenil Oarsman 35279, *d.* Peene Flapper 6th 99442 *by* Mick of Peene 32063.

3192 IV. (£2.)—Charles Spencer, Milpond, Little Oakley, Harwich, for **Holywell Peggy** (T.N. 558), born July 1; *s.* Histon Milpond 35161, *d.* Holywell Milpond Missie 2nd 73564 *by* Hillman of Harthay 25329.

3182 V. (£1.)—R. A. S. Mitchison, Pullington, Benenden, Cranbrook, for **Pullington Snowdrop 2nd** (T.N. 413), born July 29; *s.* Sunhill Swell 35807, *d.* Pullington Snowdrop 99722 *by* Albany of Pullington 5th 31118.

3163 R. N.—Commander and Mrs. Boulnois, for **Yateley Hebe.**

H. C.—3164, 3172, 3194.

Class 384.—*Two Middle White Sows, born in* 1924.

3202 I. (£10.)—Captain B. P. Beale, M.C., Hillcote Farm, Purley, Berks, for **Hillcote Baroness** and **Hillcote Baroness 2nd,** born Jan. 19; *s.* Hammonds Perfection's Pride 31675, *d.* Baroness of Burwash 82302 *by* Durbar of Ickleton 27969.

3219 II. (£5.)—Leopold C. Paget, Middlethorpe Hall, York, for sows, born Jan. 6; *s.* Wharfedale Deliverance 32575, *d.* Wharfedale Syrinx 87788 *by* Wharfedale Marvel 25658.

3217 III. (£3.)—Morgan & Winterson, Abberton, Pershore, for sows, born Jan. 1; *s.* Abberton Elligote, *d.* Abberton Choice 93834 *by* Caldmore Joe 38337.

3203 IV. (£2.)—S. Bide & Sons, Ltd., Pedigree Pig Farm, Farnham, for sows, born Jan. 12; *s.* Wharncliffe Master, *d.* Compton Rosina *by* Pendley King 32179.

3225 V. (£1.)—Lt.-Col. H. Spender-Clay, M.P., Ford Manor, Lingfield, for sows, born Jan. 3; *s.* Harvester of Fordmanor, *d.* Wharfedale Impression 75910 *by* Preserver of Wharfedale 25493.

3216 R. N.—Viscount Lewisham and Major W. Llewellen Palmer, Godmersham Park, Canterbury.

H. C.—3211.

Tamworths.

Class 385.—*Tamworth Boars, born in or before* 1922.

3230 I. (£10, & R. N. for Champion.[1])—B. I. Philip, Botts Green House, Coleshill, for **Whitacre Wanderer 39865** (T.N. 357), born Feb. 20, 1922; *s.* Roamer of Whitacre 39855, *d.* Whitacre Kathleen 64082 *by* Enterprise of Whitacre 21841.

Class 386.—*Tamworth Boars, born in* 1923.[2]

3233 I. (£10, Champion,[1] & Champion.[3])—Frederick W. Holt, The Grove, Wishaw, Erdington, Birmingham, for **Knowle Joshua** (T.N. 540), born Mar. 12, bred by the late Robert Ibbotson, The Hawthorns, Knowle, Birmingham; *s.* Knowle Joseph 36009, *d.* Queen of Basildon 76252 *by* Whitacre Firaway 25821.

3237 II. (£5.)—B. I. Philip, Botts Green House, Coleshill, for **Basildon Majesty 4th** (T.N. 182), born Feb. 8, bred by Major J. A. Morrison, D.S.O., Basildon Park, Reading; *s.* Knowle Darlington 32687, *d.* Basildon Madeline 18th 63966 *by* Basildon Able 25675.

3238 III. (£3.)—J. A. H. Stansfeld, Bates Farm, Wittersham, Kent, for **Milton Redcap** (T.N. 140), born April 9, bred by C. L. Coxon, Milton, Shobdon, Hereford; *s.* Roxley Exeter 36047, *d.* Middleton Malines 57610 *by* Mancunium of Middleton 23341.

3239 IV. (£2.)—George H. Talbott, Mill Farm, Lilleshall, Newport, Salop, for **Basildon Golden State 2nd** (T.N. 201), born Mar. 7, bred by Major J. A. Morrison, D.S.O., Basildon Park, Goring, Reading; *s.* Milton Bishop 2nd 36041, *d.* Basildon Golden Queen 13th 101984 *by* Knowle Darlington 32687.

Class 387.—*Tamworth Boars, born in* 1924.

3240 I. (£10.)—Frederick W. Holt, The Grove, Wishaw, Erdington, for **Sunbeam Squire 2nd** (T.N. 44), born Jan. 4; *s.* Knowle Bruce 36013, *d.* Knowle Queen Mary 88118 *by* Knowle Dreadnought 28419.

3243 II. (£5.)—B. I. Philip, Botts Green House, Coleshill, for **Whitacre Royal** (T.N. 459), born Jan. 3; *s.* Firaway of Whitacre, *d.* Whitacre Countess 26th 102132 *by* Roamer of Whitacre 39855.

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[1] Champion Gold Medal, value £5 5*s.*, given by the National Pig Breeders' Association for the best Tamworth Boar in Classes 385 to 387.

[2] Prizes, except Fourth, given by the National Pig Breeders' Association.

[3] Silver Challenge Cup, value Thirty Guineas, given by the National Pig Breeders' Association for the best Tamworth Pig in Classes 385 to 389.

Class 388.—*Tamworth Breeding Sows, born in or before* 1922.

3245 I. (£10, R. N. for Champion,[1] & Champion.[2])—Frederick W. Holt, The Grove, Wishaw, Erdington, for **Milton Pearl** (T.N. 80), born Jan. 2, 1922, farrowed Jan. 26; *s.* Mons of Middleton 25775, *d.* Middleton Mainz 57614 *by* Mitcheldene of Middleton 23343.

Class 389.—*Tamworth Sows, born in* 1923.

3249 I. (£10, & R. N. for Champion.[2])—Frederick D. Holt, The Grove, Wishaw, Erdington, for **Sunbeam Sunstar** (T.N. 25), born Jan. 6; *s.* Knowle Neptune 36027, *d.* Milton Pearl *by* Mons of Middleton 25775.

Class 390.—*Two Tamworth Sows, born in* 1924.

3254 I. (£10.)—B. I. Philip, Botts Green House, Coleshill, for sows, born Jan. 4; *s.* Firaway of Whitacre, *d.* Whitacre Countess 25th 102130 *by* Roamer of Whitacre 39855.

3255 II. (£5.)—J. A. H. Stansfeld, Bates Farm, Wittersham, Kent, for sows (T.N. 629 and 638), born Jan. 1 and 7, bred by the late R. Ibbotson, The Hawthorns, Knowle; *ss.* Knowle Nomen 47145 and Knowle Newcastle, *ds.* Knowle Red Queen 4th 102102, *by* Knowle Bruce 36013, and Knowle Vesta 88134, *by* Knowle Bedford 32669.

3251 III. (£3.)—Frederick W. Holt, The Grove, Wishaw, Erdington, for **Sunbeam Sunstar 2nd** and **Sunbeam Sunlight**, born Jan. 4; *s.* Knowle Bruce 36013, *d.* Knowle Queen Mary 88118 *by* Knowle Dreadnought 28419.

3256 R. N.—J. H. Wheatley, Berkswell Hall, Coventry, for **Red Duchess of Berkswell** and **Red Baroness of Berkswell**.

Berkshires.

Class 391.—*Berkshire Boars, born in or before* 1922.

3265 I. (£10.)—Frank Townend, Highfield, Moor Allerton, Leeds, for **Highfield Royal President 2nd** B. 339, born June 1, 1922; *s.* Pamber President 22702, *d.* Eaton Princess Royal 22450 *by* Manor Record 20276.

3264 II. (£5.)—Friend Sykes, Richings Park, Colnbrook, Bucks, for **Richings Prince Diamond** B. 254, born April 22, 1922; *s.* Dunmanor Prince 2nd 26001, *d.* Jamaica Jewel S. 129 *by* Hammonds Haven 22627.

3257 III. (£3.)—Joshua Ball, Southworth Hall, Warrington, for **Southwell Kingmaker** B. 1092, born Aug. 10, 1922; *s.* Murrell Ringleader 21904, *d.* Sotwell Juvenal 23826 *by* King Sydney 19321.

Class 392.—*Berkshire Boars, born in* 1923, *before July* 1.

3269 I. (£10, & Champion.[3])—Lord Bolton, Bolton Hall, Leyburn, for **Wensley Polymagnus** B. 724, born Feb. 16; *s.* Pamber Polymagnus 25728, *d.* Pamber Pretty Maid 25753 *by* Pamber President 22702.

3272 II. (£5.)—J. T. Eason, Woodhouse Farm, Smannell, Andover, for **Woodhouse Warrior** B. 641, born Feb. 7; *s.* Dunmanor Pygmalion 2nd 23979, *d.* Herriard Ophelia 3rd 24392 *by* Manor Masterman 20010.

3274 III. (£3.)—Harry I. Hallows, King Street Farm, High Ongar, Essex, for **Blackmore Negro** B. 983, born April 11; *s.* Manuden Mayfly 240, *d.* Leaside Duchess 21875 *by* Bright Boy 20096.

3275 IV. (£2.)—W. V. Judd, North End, Cheriton, Alresford, for **Enham Marquis** B. 876, born April 2; *s.* Jamaica Clansman B. 259, *d.* Monk Maisie 1st 25846 *by* Herriard Columbus 23871.

3278 R. N.—The Hon. Mrs. Bruce Ward, Godinton, Ashford, Kent, for **Godinton Golden King**.

H. C.—3268.

Class 393.—*Berkshire Boars, born in* 1923, *on or after July* 1.[4]

3299 I. (£10.)—Frank Townend, Highfield, Moor Allerton, Leeds, for **Highfield Royal Pygmalion 3rd** B. 852, born Sept. 8; *s.* Pygmalion 19872, *d.* Highfield Princess Royal 4th S. 1405 *by* Pamber President 22702.

3298 II. (£5.)—Frank Townend, for **Highfield British Pygmalion** B. 845, born Sept. 12; *s.* Pygmalion 19872, *d.* Manor Marina 24324 *by* Braishfield Buck 19909.

3289 III. (£3.)—The Earl of Harewood, Harewood House, Leeds, for **Harewood Kaffir Chief** B. 805, born Aug. 5; *s.* Murrell Hottentot Nigger B. 183, *d.* Harewood Rosalind S. 115 *by* Herriard Clondyke 21300.

3288 IV. (£2.)—The Earl of Harewood, for **Harewood Kaffir Boy** B. 806, born Aug. 5; *s.* Murrell Hottentot Nigger B. 183, *d.* Harewood Rosalind S. 115 *by* Herriard Clondyke 21300.

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[1] Silver Challenge Cup, value Thirty Guineas, given by the National Pig Breeders' Association for the best Tamworth Pig in Classes 385 to 389.

[2] Champion Gold Medal, value £5 5*s*., given by the National Pig Breeders' Association for the best Tamworth Sow in Classes 385 and 389.

[3] Challenge Cup, value Twenty Guineas, given by the British Berkshire Society for the best Berkshire Boar in Classes 391 to 394.

[4] Prizes, except Fourth and Fifth, given by the British Berkshire Society.

3290 V. (£1.)—The Earl of Harewood, for **Helsby King** B. 1083, born July 9, bred by W. Hallas, Bank House Farm, Helsby; *s.* Highfield Royal Pygmalion 26309, *d.* Eaton Roving Queen 26361 *by* Eaton Rover 22445.

3282 R. N.—Major Clive Behrens, Swinton Grange, Malton, for **Swinton Smiler.**

H. C.—3285, 3291, 3297. C.—3280, 3281, 3287.

Class 394.—*Berkshire Boars, born in* 1924.

3301 I. (£10, & R. N. for Champion.[1])—Major Clive Behrens, Swinton Grange, Malton, for boar, born Jan. 8; *s.* Highfield Royal President B. 338, *d.* Swinton Margaret S. 2216 *by* Basildon Rubin 24670.

3308 II. (£5.)—W. F. Sherriff, Ascots, Hatfield, for boar, born Jan. 2; *s.* Hammonds Carry On B. 358, *d.* Ascots Belle 15th S. 573 *by* Loyal Volunteer 20983.

3300 III. (£3.)—Joshua Ball, Southworth Hall, Warrington, for **Southworth Bobby,** born Jan. 2; *s.* Southworth Masterpiece, *d.* Southworth Rosetta G. 341 *by* Murrell Ringleader 21904.

3310 IV. (£2.)—Friend Sykes, Richings Park, Colnbrook, Bucks, for **Richings Royal Renown** B. 1089, born Jan. 28; *s.* Abinger King Alpha B. 285, *d.* Herriard Beauty 1st S. 238 *by* Herriard Colonel 22042.

Class 395.—*Berkshire Breeding Sows, born in or before* 1922.

3326 I. (£10, & R. N. for Champion.[2])—Hon. Mrs. Bruce Ward, Godinton, Ashford, Kent, for **Forest Daisy** S. 2051, born Aug. 20, 1922, farrowed Jan. 13, bred by R. W. Carson, Halse, Brackley; *s.* Forest John B. 507, *d.* Forest Joyful S. 2052 *by* Herriard Premier 2nd 21854.

3314 II. (£5.)—W. Lindsay Everard, Ratcliffe Hall, Leicester, for **Iwerne Model** 25781, born Mar. 1, 1921, farrowed Jan. 7, bred by J. H. Ismay, Iwerne Minster, Blandford; *s.* Hurry On 19635, *d.* Iwerne Miss Minster 18975 *by* Iwerne Topper 17715.

3315 III. (£3.)—Harry I. Hallows, King Street Farm, High Ongar, Essex, for **Bagshot Joan** 25794, born May 14, 1921, farrowed Mar. 4, bred by H.R.H. The Duke of Connaught, K.G., Bagshot Park; *s.* Ole Bill 21902, *d.* Whitley Cygnet 24640 *by* Sevinton Cognac 20563.

3323 IV. (£2.)—Frank Townend, Highfield, Moor Allerton, Leeds, for **Highfield Marina 2nd** S. 1402, born May 23, 1922, farrowed Mar. 29; *s.* Pamber President 22702, *d.* Manor Marina 24324 *by* Braishfield Buck 19909.

3316 V. (£1.)—The Earl of Harewood, Harewood House, Leeds, for **Harewood Jewel** 23798, born Mar. 1, 1920, farrowed Mar. 10; *s.* Murrell Jolly Boy 21924, *d.* Harewood Jolly Jess 21920 *by* Hugo 17838.

Class 396.—*Berkshire Sows, born in* 1923, *before July* 1.

3343 I. (£10, & Champion.[2])—Friend Sykes, Richings Park, Colnbrook, Bucks, for **Richings Beauty 1st** 3073, born Jan. 3; *s.* Heale Nutmeg 2nd 26448, *d.* Herriard Beauty 1st S. 238 *by* Herriard Colonel 22042.

3332 II. (£5.)—J. T. Eason, Woodhouse Farm, Smannel, Andover, for **Mount Select** S. 2098, born Jan. 11, bred by J. R. Edney Hayter, Highberry, Whitchurch, Hants; *s.* Heale Nutmeg 2nd 26448, *d.* Herriard Select 2nd 23098 *by* Basildon Rogue 20720.

3333 III. (£3.)—W. V. Judd, North End, Cheriton, Alresford, for **Enham Electra** S. 3452, born Feb. 2; *s.* Heale Nutmeg 26447, *d.* Heale Lucy 2nd 26462 *by* Ferring Saladin 26406.

3339 IV. (£2.)—W. F. Sherriff, Ascots, Hatfield, for **Ascots Belle 23rd,** born Feb. 23; *s.* Vampire 25417, *d.* Ascots Belle 21772 *by* Bright Boy 20096.

3329 V. (£1.)—Lord Bolton, Bolton Hall, Leyburn, for **Wensley Pretty Maid** S. 2835, born Feb. 16; *s.* Pamber Polymagnus 25728, *d.* Pamber Pretty Maid 25753 *by* Pamber President 22702.

3347 R. N.—The Hon. Mrs. Bruce Ward, Godinton, Ashford, Kent, for **Godinton Gloria 1st.**

H. C.—3338, 3340, 3341.

Class 397.—*Berkshire Sows, born in* 1923, *on or after July* 1.

3362 I. (£10.)—Frank Townend, Highfield, Moor Allerton, Leeds, for **Highfield Princess Royal 8th** S. 3319, born Sept. 8; *s.* Pygmalion 19872, *d.* Highfield Princess Royal 4th S. 1405 *by* Pamber President 22702.

3352 II. (£5.)—J. T. Eason, Woodhouse Farm, Smannel, Andover, for **Woodhouse Fashion** S. 3690, born July 28; *s.* Dunmanor Acme B. 429, *d.* Dunmanor Agnes 3rd 25484 *by* Iwerne Nonsuch 23375.

3359 III. (£3.)—Friend Sykes, Richings Park, Colnbrook, Bucks, for **Richings Beauty 2nd** S. 3083, born July 20; *s.* Abinger King Alpha B. 285, *d.* Herriard Beauty 1st S. 238 *by* Herriard Colonel 22042.

3361 IV. (£2.)—Frank Townend, for **Highfield Princess Royal 7th** S. 3318, born Sept. 8; *s.* Pygmalion 19872, *d.* Highfield Princess Royal 4th S. 1405 *by* Pamber President 22702.

3349 V. (£1.)—Major Clive Behrens, Swinton Grange, Malton, for sow, born July 30; *s.* Murrell Live Scott B. 27, *d.* Swinton Margart 4th S. 2219 *by* Basildon Rubin 24670.

3354 R. N.—The Earl of Harewood, Harewood House, Leeds, for **Harewood Hottentot Venus.**

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[1] Challenge Cup, value Twenty Guineas, given by the British Berkshire Society for the best Berkshire Boar in Classes 391 to 394.

[2] The "Eaton" Silver Challenge Cup, value Fifty Guineas, given through the British Berkshire Society for the best Boar or Sow in Classes 391 to 397. A Gold Medal was given by the British Berkshire Society to the Breeder of this Champion Pig.

Class 398.—*Two Berkshire Sows, born in* 1924.

3375 I. (£10.)—W. F. Sherriff, Ascots, Hatfield, for sows, born Jan. 2; *s.* Hammonds Carry On B. 358, *d.* Ascots Belle 15th S. 573 *by* Loyal Volunteer 20983.

3366 II. (£5.)—Major Clive Behrens, Swinton Grange, Malton, for sows, born Jan. 18; *s.* Murrell Live Scott B. 37, *d.* Swinton Sweet Molly 4th S. 1988 *by* Basildon Rubin 24670.

3365 III. (£3.)—Joshua Ball, Southworth Hall, Warrington, for sows, born Jan. 2; *s.* Southworth Masterpiece, *d.* Southworth Rosetta S. 341 *by* Murrell Ringleader 21904.

3370 IV. (£2.)—J. J. Carpenter, Castle Farm, Salperton, Haselton, Glos, for sows, born Jan. 3; *s.* Forest Crusader B. 510, *d.* Forest Winsome Lunn 4th S. 2053 *by* Herriard Premier 2nd 21854.

Cup.[1]—Frank Townend, Highfield, Moor Allerton, Leeds.

Large Blacks.

Class 399.—*Large Black Boars, born in or before* 1922.

3389 I. (£10.)—James Putnam, Farringdon House, Exeter, for **Drayton Result** 21595, born April 3, 1921, bred by Terah F. Hooley, Dry Drayton, Cambridge; *s.* Fentongollan Result 9585, *d.* Testerton Careful 21420 *by* Docking Athlete 7321.

3380 II. (£5.)—E. W. Edwards, Pednor House, Chesham, Bucks, for **Pednor Chief 1st** 22748, born Jan. 18, 1922; *s.* Oadby Chief 16587, *d.* Awton Mischief 49790 *by* Sudbourne Awton Chief 10571.

3396 III. (£3.)—Miss V. Verner, Crabtree, Headley, Bordon, Hants, for **Tinten Sultan 1st** 21711, born Jan. 4, 1922, bred by H. E. Bastard, Tinten Manor Farm, St. Tudy, Bodmin; *s.* Witham Tiptree 1st 11103, *d.* Tinten Black Bess 21st 17238 *by* Boss of the Valley 3855.

3376 IV. (£2.)—William Bracey, Manor House, Martham, Great Yarmouth, for **Trevisquite Sale Day** 13049, born Feb. 10, 1920, bred by Thomas Warne, Trevisquite Manor, St. Mabyn, Cornwall; *s.* Trevisquite King 10203, *d.* Trevisquite Levelsides 7th 19246 *by* Boss of the Valley 3855.

3393 V. (£1.)—L. G. T. Sedgwick, Gonvena House, Wadebridge, for **Trevisquite Talisman** 23427, born Nov. 12, 1921, bred by Thomas Warne, Trevisquite, St. Mabyn, Cornwall; *s.* Hendra Trevisquite 14333, *d.* Trevisquite Square 55514 *by* Moorland Principal 7753.

3382 R. N.—Terah F. Hooley, Dry Drayton, Cambridge, for **Rialton Hero.**

H. C.—3377, 3384, 3392, 3397.

Class 400.—*Large Black Boars, born in* 1923, *before July* 1.

3409 I. (£10, & Champion.[2])—Terah F. Hooley, Dry Drayton, Cambridge, for **Drayton Royal's Son 3rd** 27581 (T.N. 274), born Jan. 15; *s.* Menna Sunstar 16039, *d.* Drayton Dreary 38890 *by* Cornwood Tartar 8851.

3417 II. (£5.)—The Duke of Somerset, Maiden Bradley, Bath, for **Bradley Laird** 27823, born Jan. 7, bred by the 15th Duke of Somerset, Maiden Bradley, Bath; *s.* Witham Boss 8th 22667, *d.* Batheaston Beauty 2nd 85224 *by* Witham Tiptree 2nd 11105.

3408 III. (£3.)—Terah F. Hooley, for **Drayton Delirium 1st** 28585 (T.N. 282), born Feb. 8; *s.* Menna Sunstar 16039, *d.* Testerton Careful 21420 *by* Docking Athlete 7321.

3402 IV. (£2.)—W. Bracey, Manor House, Martham, Great Yarmouth, for **Martham Earl 1st** 29907, born April 30; *s.* Martham Nomination 22397, *d.* Martham Florence 79858 *by* Tinten King Henry 13139.

3405 V. (£1.)—D. W. P. Gough, Pakenham Manor, Bury St. Edmunds, for **Pakenham Mike** 30541, born June 29; *s.* Docking Dodger 21511, *d.* Wilbraham Mabel 62276 *by* Bassingbourn Earl 9933.

3404 R. N.—G. A. Goodchild, Great Yeldham Hall, Castle Hedingham, for **Tartar Cæsar.**

H. C.—3421, 3422.

Class 401.—*Large Black Boars, born in* 1923, *on or after July* 1.[3]

3427 I. (£10, & R. N. for Champion.[2])—William Bracey, Manor House, Martham, Great Yarmouth, for **Martham Clansman** 29927, born July 23; *s.* Martham Nomination 22397, *d.* Martham Eva 1st 79882 *by* Tinten King Henry 13139.

3445 II. (£5.)—Captain Percy Musker, Roudham Hall, Attleborough, for **Roudham Pagan** 29781, born July 17; *s.* Wintringham Premier 11455, *d.* Roudham Rapture 81260 *by* Fentongollan Result 9585.

3437 III. (£3.)—Terah F. Hooley, Dry Drayton, Cambridge, for **Drayton Magical** 30461, born July 9; *s.* Fentongollan Roger 10523, *d.* Drayton Minerva 1st 79824 *by* Cornwood Longsides 17441.

3449 IV. (£2.)—Alfred Playle, Bassingbourn, Cambs, for **Bassingbourn Mac** 30701, born Aug. 2; *s.* Luffenhall Saladin 19939, *d.* Saltcote Ladybird 7th 80832 *by* Bassingbourn Ringleader 14627.

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[1] The "Berkshire" Silver Challenge Cup, value £20, given through the British Berkshire Society for the most points awarded in a combination of entries in Classes 391 to 398, on the basis of: Four points for a First Prize, three points for a Second Prize, two points for a Third Prize, one point for a Fourth Prize, two points for a Championship, and one point for a Reserve for a Championship.

[2] Champion Prize of £10 given by the Large Black Pig Society for the best Boar in Classes 399 to 402. A Silver Medal was given to the Breeder of the Champion Boar.

[3] Prizes, except Fourth and Fifth, given by the Large Black Pig Society.

3431 **V. (£1.)**—D. Dowland & Son, Moorcroft Farm, Lidsing, by Chatham, for **Drayton Prince Royal 1st** 30705, born Aug. 23, bred by T. F. Hooley, Dry Drayton, Cambs; *s.* Fentongollan Roger 10523, *d.* Testerton Careful 21420 *by* Docking Athlete 7821.

3456 **R. N.**—John Warne, Tregonhayne Manor, Tregoney, Grampound Road, Cornwall, for **Treveglos Swell 1st.**

H. C.—3428, 3434, 3442, 3453. **C.**—3432, 3443.

Class 402.—*Large Black Boars, born in* 1924.

3485 **I. (£10.)**—Dr. A. R. Kay, The Manor House, Blakeney, Norfolk, for **Newland Diameter A** 99, born Jan. 12; *s.* Bardolph A 1 25119, *d.* Newland Diana 109334 *by* Tiptree Rex 19017.

3502 **II. (£5.)**—William Wills, Marlwood, Thornbury, Glos, for **Lustleigh Magnum A** 237, born Jan. 2; *s.* Zulu Magnate 25281, *d.* Greystones Venus 7th 48218 *by* Greystones Soldier 8399.

3482 **III. (£3.)**—Terah F. Hooley, Dry Drayton, Cambridge, for **Drayton Crusader 2nd A** 169 (T.N. 394), born Jan. 12; *s.* Fentongollan Roger 10523, *d.* Lynchmere Beauty 37th 26936 *by* Vahan Corporal 2nd 7503.

3486 **IV. (£2.)**—Dr. A. R. Kay, for **Newland Dynamo A** 97, born Jan. 12; *s.* Bardolph A 1 25119, *d.* Newland Diana 109334 *by* Tiptree Rex 19017.

3475 **V. (£1.)**—W. D. English, Chapter Farm, Rochester, for **Watling Corinthian A** 95, born Jan. 7; *s.* Watling Barbarian 24867, *d.* Dargate Senora 21st 50350 *by* Drayton Discoverer 8889.

3469 **R. N.**—D. Dowland & Son, Moorcroft Farm, Lidsing, by Chatham, for **Lidsing Carlos.**

H. C.—3461, 3464, 3472, 3479, 3487. **C.**—3465, 3470, 3494.

Class 403.—*Large Black Breeding Sows, born in or before* 1922.

3505 **I. (£10, & R. N. for Champion.[1])**—Harry E. Bastard, Tinten Manor, St. Tudy, Cornwall, for **Westpetherwin Duchess 2nd** 74278, born Jan. 20, 1921, farrowed Feb. 29, bred by J. E. Heard, Westpetherwin, Cornwall; *s.* Valley Royal Victor 7563, *d.* Westpetherwin Duchess 18490 *by* Whiteford Don 6399.

3506 **II. (£5.)**—H. E. Bennett, Hawkenbury, Staplehurst, for **Ambo Alpha** 70658, born Jan. 16, 1921, farrowed March 22; *s.* Trevisquite Lord of the Manor 13045, *d.* Witley Salome 33940 *by* Drayton Witley Hero 7157.

3509 **III. (£3.)**—William Bracey, Manor House, Martham, Great Yarmouth, for **Martham Dinah A** 79776, born Jan. 8, 1921, farrowed March 6; *s.* Valley Good Boy 13733, *d.* Coltishall Dinah 21002 *by* Primley Huron 6173.

3510 **IV. (£2.)**—D. Dowland & Son, Moorcroft Farm, Lidsing, by Chatham, for **Restronguet Lady** 64986, born Aug. 8, 1920, farrowed Jan. 27, bred by M. H. Holman, Restronguet, Penryn, Cornwall; *s.* Whiteford Peacemaker 8645, *d.* Restronguet Lonely 19840 *by* Valley None Such 5401.

3530 **V. (£1.)**—Walter J. Warren, Deacon's Farm, Staplegrove, Taunton, for **Haselbury Dinah** 114150, born Aug. 13, 1922, farrowed March 1, bred by Major W. Harrison, Haselbury, Crewkerne; *s.* Kibbear Royal Prior 3rd 21363, *d.* Tinten Belle 48126 *by* Trevisquite Padstonian 7973.

3512 **R. N.**—W. F. Gaskain, Dargate, Faversham, for **Streetly Squeak.**

H. C.—3511, 3523, 3524, 3529, 3531. **C.**—3513, 3516.

Class 404.—*Large Black Sows, born in* 1923, *before July* 1.

3544 **I. (£10.)**—E. W. Edwards, Pednor House, Chesham, for **Pednor Quiet 3rd** 110678, born Jan. 19; *s.* Ashwell Anchorite 3rd 14417, *d.* Awton Quiet 71948 *by* Cornwood King John 8271.

3543 **II. (£5.)**—E. W. Edwards, for **Pednor Prudence 1st** 117890, born April 6; *s.* Ashwell Anchorite 3rd 14417, *d.* Docking Prudence 77414 *by* Wiveton Colonel 12497.

3535 **III. (£3.)**—W. Bracey, Manor House, Martham, Great Yarmouth, for **Martham Punchella 4th** 102182, born Jan. 4; *s.* Martham What's Wanted 15283, *d.* Easton Punchella 1st 54132 *by* Sudbourne Clansman 12293.

3561 **IV. (£2.)**—Henry B. Rudolph, Sheriffhales Manor, Shifnal, Salop, for **Sheriffhales Biddy 9th** 103280, born March 12; *s.* Sheriffhales Boy 1st 17731, *d.* McHeather Biddy 27th 38868 *by* Ratby Handyman 4th 7591.

3559 **V. (£1.)**—Lieut.-Col. L. S. C. Nicholson, Stonehouse, Bishop's Hull, Taunton, for **Stonehouse Fedora** 117084, born Feb. 5; *s.* Vahan Jack 5th 13845, *d.* Stonehouse Felicity 1st 91004 *by* Trelystan Trooper 13553.

3539 **R. N.**—D. Dowland & Son, Moorcroft Farm, Lidsing, by Chatham, for **Lolworth Pansy.**

H. C.—3547, 3551, 3563, 3564. **C.**—3544, 3553, 3556.

Class 405.—*Large Black Sows, born in* 1923, *on or after July* 1.

3571 **I. (£10, & Champion.[1])**—A. P. Cockburn, Stanborough, Halwell, Devon, for **Stanborough Star 2nd** 127340, born July 7; *s.* Awton Sampson 21891, *d.* Barton Pines Madge 101508 *by* Trevisquite Centre Forward 11451.

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[1] Silver Challenge Cup, value Twenty Guineas, given by the Large Black Pig Society for the best Sow in Classes 403 to 405. A Silver Medal was given to the Breeder of the Champion Sow.

3591 II. (£5.)—Samuel F. Snell, Blackadon, Menheniot, Cornwall, for **Blackadon Jenny Wren 18th** 124264, born July 12 ; *s.* Vahan Max 64th 18969, *d.* Blackadon Jenny Wren 5th 79674 *by* Trevisquite Reformer 11555.

3578 III. (£3.)—D. W. P. Gough, Pakenham Manor, Bury St. Edmunds, for **Pakenham Luck** 126020, born July 6 ; *s.* Docking Dodger 21511, *d.* Pakenham Mooney 84228 *by* Lustleigh Count 2nd 17981.

3584 IV. (£2.)—A. Dyson Laurie, Homefield, Sevenoaks, for **Maxwelltoun Lassie 96th** 126052, born July 8 ; *s.* Cornwood Marvel 4th 21635, *d.* Maxwelltoun Lassie 20th 45558 *by* Maxwelltoun Black Prince 4th 11957.

3568 V. (£1.)—H. E. Bennett, Hawkenbury, Staplehurst, for **Ambo Amulet 4th** 121410, born July 1 ; *s.* Trevisquite Lord of the Manor 13045, *d.* Dargate Senora 1st 23874 *by* Sudbourne Lord 6267.

3572 R.N.—A. P. Cockburn, for **Stanborough Star 3rd.**

H. C.—3570, 3576, 3577, 3579.

Class 406.—*Two Large Black Sows, born in* 1924.

3602 I. (£10.)—Major J. Gordon Dugdale, Whiteway Farm, Cirencester, for **Whiteway Duchess 25th** A 162 and **Whiteway Duchess 26th** A 164, born Jan. 1 ; *s.* Cornwood Doonard 20621, *d.* Whiteway Duchess 2nd 78860 *by* Tinten Whiteway Venture 16877.

3596 II. (£5.)—Harry E. Bastard, Tinten Manor, St. Tudy, Cornwall, for **Tinten Princess 7th** A 22, and **Tinten Princess 8th** A 24, born Jan. 10 ; *s.* Cornwood J.P. 2nd 28949, *d.* Tinten Princess 4th 73608 *by* Fentongollan Lad 10567.

3615 III. (£3.)—Alfred Playle, Bassingbourn, Cambs, for **Bassingbourn Bertha,** and **Bassingbourn Bertha 1st,** born Jan. 16 ; *s.* Luffenhall Saladin 19939, *d.* Furneaux Firebrand 56024 *by* Bassingbourn Reliance 11781.

3598 IV. (£2.)—W. Bracey, Manor House, Martham, Great Yarmouth, for **Martham Blackberry 1st** A 312 and **Martham Blackberry 2nd** A 314, born Jan. 11 ; *s.* Martham Nomination 22397, *d.* Treveglos Gem 5th 44714 *by* Vahan Melva 2nd 5691.

3619 V. (£1.)—A. Beverley Ringer, Mere House, Seething, Norwich, for **Swardeston Sister** and **Swardeston Susie,** born Jan. 25 ; *s.* Martham Beverley 20499, *d.* Swardeston Security 79376 *by* Offley Bradbury 13251.

3620 R. N.—John Warne, Tregonhayne Manor, Tregoney, Grampound Road, for **Treveglos Negress 1st** and **Treveglos Negress 2nd.**

H. C.—3597, 3599, 3604, 3605, 3606. C.—3616.

Gloucestershire Old Spots.

Class 407.—*Gloucestershire Old Spots Boars, born in or before* 1922.

3636 I. (£10, & R. N. for Champion.[1])—Joseph Westwood, The Vineries, Acocks Green, Birmingham, for **King's Weston Pierrot** 3284, born Sept. 15, 1920, bred by Ernest Thomas Grey, King's Weston, Shirehampton ; *s.* Sultan 4th of Hollywood Tower 461, *d.* Bounds Ruth 7th 5230 *by* Gilslake Major 622.

3635 II. (£5.)—Joseph Westwood, for **King's Weston Jock** 5079, born Aug. 28, 1922, bred by Ernest Thomas Grey, King's Weston, Shirehampton ; *s.* King's Weston Joker 4456, *d.* Clevehill Diana 11332 *by* Sultan 4th of Hollywood Tower 461

3632 III. (£3.)—Major Herbert Musker, Rushford Hall, Thetford, for **Holmwood Dauntless** 4275, born March 7, 1921, bred by Stanley H. Badock, Holmwood, Westbury-on-Trym ; *s.* Ashton Bloomer 1741, *d.* Clevehill Beauty 11327 *by* Sultan 4th of Hollywood Tower 461.

3631 IV. (£2.)—Major Herbert Musker, for **Doloncothy King Solomon** 5138, born Aug. 6, 1922, bred by Mrs. Georgina Mary Lloyd, Croydon Rectory, Royston, Herts ; *s.* Chalfont Pilot 4064, *d.* Bromley Lady Godiva 6th 13507 *by* Shaw Lane Duke.

3627 R. N.—Osbert Randolph Bagnall, The Howsells, Malvern Link, for **Howsell Actor.**

H. C.—3630. C.—3634.

Class 408.—*Gloucestershire Old Spots Boars, born in* 1923, *before July* 1.

3638 I. (£10, Champion,[1] & Champion.[2])—James D. Beak, Maiden Bradley, Bath, for **Maiden Bradley General 2nd** 5277, born March 15 ; *s.* Ashton Dapper 4627, *d.* Diardor Barmaid 8390 *by* Clevehill Actor 664.

3644 II. (£5.)—Frederick W. Fanshawe, Old Sulehay Lodge, Yarwell, Peterborough, for **Sulehay Jumbo** 5181, born May 2 ; *s.* Hill House Jumbo 2nd 2962, *d.* Dumbleton Pansy 9061 *by* Hodgecombe Lad 1022.

3645 III. (£3.)—Sherriff & Sons, Lemsford, Hatfield, for **Nashes Premier 2nd** 5423, born April 8 ; *s.* Dorset Diver 4401, *d.* Nashes Blossom 4th 15320 *by* Nashes Duke 1st 3068.

3642 IV. (£2.)—Leopold G. Collett, Meole House, Evesham, for **Smokey Proctor** 5860, born April 8 ; *s.* Holmwood Dauntless 4275, *d.* Smokey Girl 9431 *by* Nailsea Lad 731.

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[1] Silver Challenge Cup, value Twenty Guineas, given through the Gloucestershire Old Spots Pig Society for the best Boar in Classes 407 to 410.

[2] Silver Challenge Cup, value Forty Guineas, given through the Gloucestershire Old Spots Pig Society for the best Boar or Sow in Classes 407 to 413.

3640 V. (£1.)—Leopold G. Collett, for **Smokey Dandy** 5359, born April 8; *s.* Holmwood Dauntless 4275, *d.* Smokey Girl 9431 *by* Nailsea Lad 731.

3650 R. N.—F. Harold Turnbull, Lower House Farm, Llantwit Major, Cardiff, for **Llantwit Hero 2nd.**

H. C.—3647. **C.**—3637, 3639, 3641.

Class 409.—*Gloucestershire Old Spots Boars, born in* 1923, *on or after July* 1.[1]

3659 I. (£10.)—Sherriff & Sons, Lemsford, Hatfield, for **Nashes Premier 5th,** born July 14; *s.* Dorset Diver 4401, *d.* Nashes Blossom 3rd 15319 *by* Nashes Duke 1st 3068.

3653 II. (£5.)—Miss A. J. Behrens, Ripple Hall, Tewkesbury, for **Fairfield Jack 4th** 5267, born July 24, bred by J. B. Dowding, Fairfield, Leominster; *s.* Fairfield Jack 4th 5266, *d.* Pockington Clara 7736 *by* Ploughland Edward 1299.

3656 III. (£3.)—R. E. Matthews, Crow Hall, Burnham Market, Norfolk, for **Burnham Hector,** born July 14; *s.* White House Duke 4293, *d.* Burnham Helen 1st 13863 *by* Birdlip Boss 1675.

3661 IV. (£2.)—Joseph Westwood, The Vineries, Acocks Green, Birmingham, for **Birmingham Forward** 5300, born Aug. 20; *s.* King's Weston Jock 5079, *d.* Primadonna 16499 *by* King's Weston Pierrot 3284.

3662 V. (£1.)—J. F. Wright, Olton Farm, Solihull, Birmingham, for **Solihull Major 1st** 5354, born Aug. 28; *s.* Ithells Major 2nd 2084, *d.* Ithells Josephine 23rd 16436 *by* White House Duke 4293.

3655 R. N.—Miss B. G. Cory-Wright, Ayot Place, Welwyn, Herts, for **Ayot Paragon.**

Class 410.—*Gloucestershire Old Spots Boars, born in* 1924.

3666 I. (£10.)—Bennett and Howard, Quarry Farm, Thornbury, Glos, for **Thornbury William** 5421, born Jan. 12; *s.* Ayot Page 5069, *d.* Thornbury Waterlady 8939 *by* Ashton Bloomer 1741.

3671 II. (£5.)—Mrs. G. M. Lloyd, Croydon Rectory, Royston, Herts, for **Dolancothy Marcus,** born Jan. 8; *s.* Ayot Potluck, *d.* Ithells Josephine 14th 15442 *by* Ithells Major 2084.

3665 III. (£3.)—Bennett & Howard, for **Thornbury Barone** 5422, born Jan. 8; *s.* Ayot Page 5069, *d.* Thornbury Bar-None 15783 *by* Ashton Bloomer 1741.

3677 IV. (£2.)—F. Harold Turnbull, Lower House Farm, Llantwit Major, Cardiff, for **Llantwit Archie** 5414, born Jan. 16; *s.* Stoke Hill Magnet 4516, *d.* Clapcote Ada 1st 15707 *by* Eastern Sunstar 3173.

3663 V. (£1.)—James D. Beak, Maiden Bradley, Bath, for **Maiden Bradley General 3rd,** born Jan. 2; *s.* Ashton Dapper 4627, *d.* Maiden Bradley Barmaid 14640 *by* Maiden Bradley Champion 1st 3858.

3672 R. N.—Major Herbert Musker, Rushford Hall, Thetford.

Class 411.—*Gloucestershire Old Spots Breeding Sows, born in or before* 1922.

3682 I. (£10.)—Miss A. J. Behrens, Ripple Hall, Tewkesbury, for **Ripple Dodo** 15298, born April 26, 1921, farrowed Feb. 17; *s.* Ashton Bloomer 1741, *d.* Clevehill Mistress 7026 *by* Shipway Prince 284.

3692 II. (£5.)—Sherriff & Sons, Lemsford, Hatfield, for **Nashes Duchess 9th** 16226, born Feb. 10, 1922, farrowed Jan. 16; *s.* Gilslake Soldier 3127, *d.* Nashes Duchess 1st 9036 *by* Harlequin of Hollywood Tower 911.

3689 III. (£3.)—Henry Matthews, Down Farm, Winterbourne, Bristol, for **Thornbury Ballet-Girl** 13710, born June 18, 1921, farrowed Feb. 23, bred by Bennett & Howard, Quarry Farm, Thornbury, Glos; *s.* Ashton Bloomer 1741, *d.* Thornbury Begum 8941 *by* Gilslake Admiral 907.

3683 IV. (£2.)—Bennett & Howard, Quarry Farm, Thornbury, Glos, for **Thornbury Waterlady** 15778, born Jan. 3, 1922, farrowed Jan. 12; *s.* Ashton Bloomer 1741, *d.* Thornbury Waterlily 8939 *by* Gilslake Admiral 907.

3686 V. (£1.)—Miss B. G. Cory-Wright, Ayot Place, Welwyn, Herts, for **Ayot Perhaps** 16707, born Aug. 22, 1922, farrowed Jan. 19; *s.* Chalfont Pilot 4064, *d.* Croxton Fiction 16th 7340 *by* Hobwell Monarch 1028.

3690 R. N.—A. Hugo Radcliffe, Spring Hill, Rochdale, for **Grove Brownie 2nd.**

Class 412.—*Gloucestershire Old Spots Sows, born in* 1923, *before July* 1.

3695 I. (£10, & R. N. for Champion.[2])—James D. Beak, Maiden Bradley, Bath, for **Maiden Bradley Maid** 17490, born March 10; *s.* Ashton Dapper 4627, *d.* Maiden Bradley Barmaid 2nd 14641 *by* Maiden Bradley Champion 1st 3858.

3696 II. (£5.)—James D. Beak, for **Maiden Bradley Maid 3rd** 17492, born April 25; *s.* Ashton Dapper 4627, *d.* Maiden Bradley Barmaid 14640 *by* Maiden Bradley Champion 1st 3858.

3709 III. (£3.)—Sherriff & Sons, Lemsford, Hatfield, for **Nashes Blossom 15th** 17229, born March 16; *s.* Ayot Premier 4871, *d.* Nashes Blossom 2nd 15318 *by* Nashes Duke 1st 3068.

3700 IV. (£2.)—John W. Grocock, Ridlington, Uppingham, for **Ridlington Crystal** 17142, born Feb. 15; *s.* Sondrena Champion 4252, *d.* Ridlington Countess 13736 *by* Southam Prince 2718.

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[1] Prizes, except Fourth and Fifth, given by the Gloucestershire Old Spots Pig Society.

[2] Silver Challenge Cup, value Twenty Guineas, given through the Gloucestershire Old Spots Pig Society for the best Sow in Classes 411 to 413.

3702 V. (£1.)—The Earl of Leitrim, Court Lodge, Teston, Maidstone, for **Teston Pierrette** 17600, born Jan. 21; *s.* Westacre Colonel 4222, *d.* Teston Kathleen 14699 *by* Hodgecombe Hero 2016.

3697 R. N.—Miss B. G. Cory-Wright, Ayot Place, Welwyn, for **Thornbury Barrow.**

C.—3711.

Class 413.—*Gloucestershire Old Spots Sows, born in* 1923, *on or after July* 1.[1]

3715 I. (£10, R. N. for Champion,[2] & Champion.[3])—Henry Matthews, Down Farm, Winterbourne, Bristol, for **Fairfield Elgion 12th** 17531, born July 3, bred by T. B. Dowding, Fairfield, Leominster; *s.* Fairfield Famous 3rd 4162, *d.* Elgion 6th 11516 *by* Clapcote Ben 372.

3724 II. (£5.)—Joseph Westwood, The Vineries, Acocks Green, Birmingham, for **Birmingham Sunmaid** 17646, born Aug. 16; *s.* King's Weston Jock 5079, *d.* Primadonna 3rd 16501 *by* King's Weston Pierrot 3284.

3717 III. (£3.)—Alfred Rooksby, Litchard Hall, Bridgend, for **Litchard Duchess,** born July 20; *s.* Litchard Mischief 4974, *d.* Langforde Cowslip 7960 *by* Langforde Noble 815.

3719 IV. (£2.)—Alfred Rooksby, for **Litchard Princess,** born July 20; *s.* Litchard Mischief 4974, *d.* Langforde Cowslip 7960 *by* Langforde Noble 815.

3713 V. (£1.)—Bennett & Howard, Quarry Farm, Thornbury, Glos, for **Thornbury Wanderer** X 227, born Sept. 24; *s.* Dorset Baronet 4828, *d.* Thornbury Waterfall 15309 *by* Ashton Bloomer 1741.

3722 R. N.—F. Harold Turnbull, Lower House Farm, Llantwit Major, Cardiff, for **Llantwit Beatrice.**

H. C.—3723. C.—3721.

Class 414.—*Two Gloucestershire Old Spots Sows, born in* 1924.

3726 I. (£10.)—Bennett & Howard, Quarry Farm, Thornbury, Glos, for **Thornbury Bartwo** X 228 and **Thornbury Barthree** X 229, born Jan. 8; *s.* Ayot Page 5069, *d.* Thornbury Bar-None 15783 *by* Ashton Bloomer 1741.

3734 II. (£5.)—Sherriff & Sons, Lemsford, Hatfield, for **Nashes Duchess 19th** 238 and **Nashes Duchess 20th** 239, born Jan. 16; *s.* Dorset Diver 4401, *d.* Nashes Duchess 9th 16226 *by* Gilslake Soldier 3127.

3729 III. (£3.)—The Earl of Leitrim, Court Lodge, Teston, Maidstone, for sows, born Jan. 2; *s.* Westacre Colonel 4222, *d.* Teston Kismet 14702 *by* Hodgecombe Hero 2016.

3731 IV. (£2.)—A. Hugo Radcliffe, Spring Hill, Rochdale, for **Sunrise Patience 1st** X 245 and **Sunrise Patience 2nd** X 246, born Jan. 10; *s.* Sunrise Hector 4957, *d.* Kimberley Pride 5th 15659 *by* Gwent Alpha 488.

3735 V. (£1.)—F. Harold Turnbull, Lower House Farm, Llantwit Major, Cardiff, for **Llantwit Adelaide** X 215 and **Llantwit Ann** X 216, born Jan. 16; *s.* Stoke Hill Magnet 4516, *d.* Clapcote Ada 1st 15707 *by* Eastern Sunstar 3173.

3730 R. N.—Mrs. G. M. Lloyd, Croydon Rectory, Royston, for **Dolancothy Yolanda 1st** and **Dolancothy Yolanda 2nd.**

C.—3732.

Lincolnshire Curly-Coated.

Class 415.—*Lincolnshire Curly-Coated Boars, born in or before* 1922.

3738 I. (£10, & Champion.[4])—F. J. Caudwell, Manor House, Sibsey, Boston, for **Bold Prince 2nd** 4643 (T.N. 133), born Jan. 20, 1921, bred by W. Abbott, Swaton, Billingborough, Lincs.; *s.* Ponton Prince 4103, *d.* Bold Evolution *by* Carrington Grange Evolution 2nd 1389.

3739 II. (£5.)—George Freir, Tolethorpe House, Deeping St. Nicholas, Spalding, for **Deeping Ashleaf** (T.N., L.I.C.P.S. 19), born Jan. 3, 1922; *s.* Gainsborough Deeping 4317, *d.* Deeping Ashleaf 2nd 11495 *by* Deeping East Kirkby 4113.

Class 416.—*Lincolnshire Curly-Coated Boars, born in* 1923.[5]

3743 I. (£10, & R. N. for Champion.[4])—Frederick E. Bowser, Wigtoft, Boston, for **Wigtoft Largest** (T.N. 941), born Mar. 4; *s.* Holmes Hero 5th 4687, *d.* Wigtoft Heroine 6th 12352 *by* Carrington Grange Mascot 2nd 4287.

3742 II. (£5.)—W. Abbott, Swaton, Billingborough, for boar (T.N. 93), born April 2; *s.* Frieston Bold 4713, *d.* Bold Evolution 2nd 12370 *by* Ponton Prince 4105.

3745 III. (£3.)—George Freir, Tolethorpe House, Deeping St. Nicholas, Spalding, for **Toynton Hero** (T.N., L.I.C.P.S. 20), born July 1, bred by A. E. Alliss, Toynton, Spilsby, Lincs; *s.* Holmes Hero 6th, *d.* Toynton Queen 3rd *by* Ponton Forerunner.

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[1] Prizes, except Fourth and Fifth, given by the Gloucestershire Old Spots Pig Society.

[2] Silver Challenge Cup, value Forty Guineas, given through the Gloucestershire Old Spots Pig Society for the best Boar or Sow in Classes 407 to 413.

[3] Silver Challenge Cup, value Twenty Guineas, given through the Gloucestershire Old Spots Pig Society for the best Sow in Classes 411 to 413.

[4] Champion Prize of £5 5*s.* given by the Lincolnshire Curly-Coated Pig Breeders' Association for the best Boar in Classes 415 to 417.

[5] Prizes given by the Lincolnshire Curly-Coated Pig Breeders' Association.

Class 417.—*Lincolnshire Curly-Coated Boars, born in* 1924.

3747 I. (£10.)—W. Abbott, Swaton, Billingborough, for boar (T.N. I, 4), born Jan. 10; *s.* Frieston Bold 4713, *d.* Bold Princess 1st 12504 *by* Ponton Prince 4105.

3753 II. (£5.)—George Freir, Tolethorpe House, Deeping St. Nicholas, Spalding, for **Deeping Bloomer** (T.N., L.I.C.P.S. 12), born Feb. 5, bred by F. Richardson, Bourne Fen, Bourne, Lincs; *s.* Deeping Royal 1st 4153, *d.* Twenty Violet *by* Deeping Bold King 4087.

3749 III. (£3.)—Frederick E. Bowser, Wigtoft, Boston, for boar (T.N. 5004), born Jan. 5; *s.* Holmes Hero 5th 4687, *d.* Wigtoft Alice 4th 12176 *by* Carrington Grange Mascot 2nd 4287.

3754 IV. (£2.)—George Freir, for **Deeping Nimrod** (T.N., L.I.C.P.S. 13), born Jan. 20; *s.* Deeping Gainborough 4317, *d.* Deeping Royal 16th 12250 *by* Deeping Gainborough 4317.

Class 418.—*Lincolnshire Curly-Coated Breeding Sows, born in or before* 1922.

3762 I. (£10, & Champion.[1])—George Freir, Tolethorpe House, Deeping St. Nicholas, Spalding, for **Deeping Verity** 12266 (T.N., L.I.C.P.S. 17), born Aug. 5, 1921, farrowed Jan. 9; *s.* Carrington Grange Majestic 4281, *d.* Deeping Lady 1st *by* Deeping East Kirkby 4113.

3761 II. (£5, & R. N. for Champion.[1])—George Freir, for **Deeping Royal 16th** 12250 (T.N., L.I.C.P.S. 18), born Jan. 5, 1921, farrowed Jan. 10; *s.* Gainsborough Deeping 4317, *d.* Deeping Royal 4th *by* Deeping Bold King 4087.

3757 III. (£3.)—W. Abbott, Swaton, Billingborough, Lincs, for **Bold Cambridge 2nd** 12510 (T.N. 6, 2), born Jan., 1922, farrowed Jan. 20; *s.* Bold Dean 2nd 4639, *d.* Bold Evolution 1st 12366 *by* Safford 19th 3895.

3758 R. N.—Frederick E. Bowser, Wigtoft, Boston, for **Wigtoft Helen 3rd.**

H. C.—3759.

Class 419.—*Lincolnshire Curly-Coated Sows, born in* 1923.

3767 I. (£10.)—F. J. Caudwell, Manor House, Sibsey, Boston, for **Midville Iris 4th** 12666 (T.N. 88), born Feb. 14; *s.* Bold Prince 2nd 4643, *d.* Midville Iris 2nd 12376 *by* Carrington Grange Majestic 4281.

3766 II. (£5.)—Frederick E. Bowser, Wigtoft, Boston, for **Wigtoft Mercean 14th** 12189.

3765 R. N.—William Abbott, Swaton, Billingborough, for **Bold Princess 3rd.**

Class 420.—*Two Lincolnshire Curly-Coated Sows, born in* 1924.

3772 I. (£10.)—Frederick E. Bowser, Wigtoft, Boston, for sows, born Jan. 5; *s.* Holmes Hero 5th 4687, *d.* Wigtoft Helen 3rd 12154 *by* Carrington Grange Mascot 2nd 4387.

3773 II. (£5.)—Harold H. Bowser, The Holmes, Kirton Holme, Boston, for **Holmes Pride 38th and Holmes Pride 39th** (T.N. 37 and 38), born Jan. 3; *s.* Wigtoft Majestic 6th 4635, *d.* Holmes Pride 26th 12770 *by* Fishtoft Leader 3rd 4575.

3774 III. (£3.)—F. J. Caudwell, Manor House, Sibsey, Boston, for sows, born Jan. 3; *s.* Curly Duke 1st 4851, *d.* Midville Lady 3rd 12414 *by* Carrington Grange Majestic 4281.

3775 R. N.—George Freir, Tolethorpe House, Deeping St. Nicholas, Spalding, for **Deeping Twenty 1st and Deeping Twenty 2nd.**

Cumberland.

Class 423.—*Cumberland Boars, born in* 1924.

3784 I. (£10.)—John S. Jordan, Bowston, Kendal, for **Bowston Fancier** (T.N. F 26), born Jan. 20; *s.* Bowston Enterprise 4485, *d.* Janet 2nd 4169 *by* Squire of Aikton 1262.

Class 425.—*Cumberland Sows, born in* 1923.

3795 I. (£10, & Champion.[2])—John S. Jordan, Bowston, Kendal, for **Bowston Sonsy** 5257 (T.N. E 9), born Jan. 21; *s.* Parton Height 1242, *d.* Janet 2nd 4169 *by* Squire of Aikton 1262.

Wessex Saddlebacks.

Class 427.—*Boars born in or before* 1922.

3810 I. (£10, Champion,[3] & Champion.[4])—T. L. Martin, Ashe Warren House, Overton, Hants, for **Ashe Plant 2nd** 650, born Jan. 29, 1921; *s.* Ashe Plant 72, *d.* Caer Girdle 438 *by* Caer Kingmaker 9.

3811 II. (£5.)—Dolphin Smith, Mackrey End, Harpenden, for **Harpenden True Type** 1464, born Aug. 3, 1922; *s.* Norman King Offa 219, *d.* Romsey True Type 930.

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[1] Champion Prize of £5 5*s.* given by the Lincolnshire Curly-Coated Pig Breeders' Association for the best Sow in Classes 418 and 419.

[2] Champion Prize of £5 given by the Cumberland Pig Breeders' Association for the best Sow in Classes 424 and 425.

[3] Champion Gold Medal, value £5 5*s.*, given by the Wessex Saddleback Pig Society for the best Boar in Classes 427 to 430.

[4] Silver Challenge Cup, value Thirty Guineas, given by the Wessex Saddleback Pig Society for the best Wessex Saddleback Pig in Classes 427 to 433.

3808 III. (£3.)—Andrew Hope, West Sidborough, Tiverton, for **Norman Perfection 660**, born Jan. 25, 1921, bred by W. M. G. Singer, Norman Court, Salisbury; *s.* Norman Obelisk 300, *d.* Norman Empress 45.

3809 IV. (£2.)—T. L. Martin, for **Ashe Mac 2nd** 680, born Feb. 2, 1921; *s.* Holburg Lancer 190, *d.* Ashe Mercy 243 *by* Melchet Cooper 2.

3813 R. N.—Alan R. Whittington, Yarty, Axminster, for **Yarty Prince 2nd.**

Class 428.—*Wessex Saddleback Boars, born in* 1923, *before July* 1.[1]

3823 I. (£10.)—R. B. Taylor & Sons, Yeovil, for **Sockhill Spartan** 1876, born April 16; *s.* Sockhill Orpheus 857, *d.* Eastington Salome 274.

3824 II. (£5.)—Stanley White, Offley Grange, Hitchin, for **Offa Mac 1st** 1913, born Jan. 29; *s.* Ashe Mac 2nd 680, *d.* Melchet Nora 181.

3820 III. (£3.)—H. G. Lakin, Pipers Hill, Leamington, for **Eastington Pagan** 1838, born Feb. 15, bred by Misses Donisthorpe and de Montgeon, Eastington Hall, Upton-on-Severn; *s.* Norman Polham 661, *d.* Eastington Venus 932 *by* Eastington Nimrod 81.

3821 IV. (£2.)—T. L. Martin, Ashe Warren House, Overton, Hants, for **Ashe Marker** 1687, born Jan. 5; *s.* Ashe Mask 1221, *d.* Ashe Violet 7th 4983 *by* Ashe Plant 2nd 650.

Class 429.—*Wessex Saddleback Boars, born in* 1923, *on or after July* 1.

3831 I. (£10, R. N. for Champion,[2] & R. N. for Champion.[3])—Fred. W. Rodwell, Hastoe Villa, Tring, for **Tring Commander** 2115, born July 22; *s.* Ayot Roamer 1110, *d.* Royston Cornflower 6681 *by* Norman King Offa 219.

3829 II. (£5.)—H. G. Lakin, Pipers Hill, Leamington, for **Pipers Adrian** 2243, born July 3; *s.* Sherfield Shackleton 815, *d.* Norman Peach 3353 *by* Cattistock Deputy Master 460.

3830 III. (£3.)—Alexander Lyon, Grange, Emberton, Olney, Bedford, for **Emberton Ben** 2331, born July 4; *s.* Broadlands Brass Hat 1313, *d.* Emberton Bluebelle 7171 *by* Boveridge Celandine 1075.

3832 R. N.—Douglas Vickers, Temple Dinsley, Hitchin, for **Preston Pride 1st.**

Class 430.—*Wessex Saddleback Boars. born in* 1924.

3842 I. (£10.)—Douglas Vickers, Temple Dinsley, Hitchin, for **Preston Don**, born Jan. 3; *s.* Royston Cicero 1530, *d.* Offa Doreen 4845 *by* Offa Edmund 471.

3837 II. (£5.)—H. G. Lakin, Pipers Hill, Leamington, for **Pipers King John** 2369, born Jan. 9; *s.* Sherfield Shackleton 815, *d.* Norman Peach 3353 *by* Cattistock Deputy Master 460.

3843 III. (£3.)—Stanley White, Offley Grange, Hitchin, for **Offa Royal Pygmalion** 2365, born Jan. 3; *s.* Mac of Offa 1581, *d.* Sister Susie of Offa 9233.

3841 IV. (£2.)—Douglas Vickers, for **Preston Cicero**, born Jan. 2; *s.* Royston Cicero 1530, *d.* Cattistock Shepherdess 1806 *by* Cattistock Best Boy 160.

Class 431.—*Wessex Saddleback Breeding Sows, born in or before* 1922.

3844 I. (£10, & Champion.[4])—Awebridge & Co., Ltd., Northgrounds Farm, Chale, Isle of Wight, for **Awebridge Silvia** 5366, born Jan. 12, 1922, farrowed April 24; *s.* Mr. Hopeful of Awebridge 267, *d.* Miss Muffit of Awebridge 889 *by* Cattistock Norman 6.

3851 II. (£5.)—T. L. Martin, Ashe Warren House, Overton, Hants, for **Noreen of Northington** 3644, born June 27, 1921, farrowed Jan. 28; *s.* Ashe Plant 72, *d.* Norman Nectar 316 *by* Norman Hero 27.

3854 III. (£3.)—Mrs. Ernest Turner, Shipton Oliffe Manor, Andoversford, Glos, for **Offa Mona** 2725, born April 10, 1921, farrowed April 3, bred by Stanley White, Offley Grange, Hitchin; *s.* Norman King Offa 219, *d.* Offa Anafrida 1101 *by* Cattistock Best Barn 87.

3849 IV. (£2.)—H. G. Lakin, Pipers Hill, Leamington, for **Pipers Perdita** 6897, born Sept. 27, 1922, farrowed Jan. 4; *s.* Sherfield Shackleton 815, *d.* Pipers Titania 2975 *by* Eastington Joker 277.

3845 V. (£1.)—Baron Brothers, Lockley Farm, Welwyn, for **Ayot Emily 1st** 7081, born Aug. 27, 1922, farrowed Mar. 11, bred by George Baron, Limes, Welwyn; *s.* Norman King Offa 219, *d.* Purbeck Emily 1396 *by* Cattistock Best Barn 87.

3852 R. N.—Dolphin Smith, Mackrey End, Harpenden, for **Norman Pippin.**

Class 432.—*Wessex Saddleback Sows, born in* 1923, *before July* 1.[1]

3856 I. (£10, & R. N. for Champion.[4])—Awebridge & Co., Ltd., Northgrounds Farm, Chale, Isle of Wight, for **Awebridge Jeanette** 7567, born Jan. 24; *s.* Ashe Premier 400, *d.* Awebridge Lucetta 4304 *by* Mr. Hopeful of Awebridge 267.

3857 II. (£5.)—Edward J. Beechener, Green Farm, Barton-in-the-Clay, Beds, for **Barton Verena 2nd** 8285, born Jan. 1; *s.* Barton Thatcher 1508, *d.* Barton Verena 4587 *by* Norman King Offa 219.

3858 III. (£3.)—Misses F. E. Donisthorpe and G. de Montgeon, Eastington Hall, Upton-on-Severn, for **Eastington Rockdove** 8750, born Jan. 8; *s.* Eastington Sainfoin 783, *d.* Ringouzel of Eastington 3582 *by* Melchet Lieutenant 120.

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[1] Prizes, except Fourth and Fifth, given by the Wessex Saddleback Pig Society.

[2] Champion Gold Medal, value £5 5*s.*, given by the Wessex Saddleback Pig Society for the best Boar in Classes 427 to 430.

[3] Silver Challenge Cup, value Thirty Guineas, given by the Wessex Saddleback Pig Society for the best Wessex Saddleback Pig in Classes 427 to 433.

[4] Champion Gold Medal, value £5 5*s.*, given by the Wessex Saddleback Pig Society for the best Sow in Classes 431 to 433.

3863 IV. (£2.)—H. G. LAKIN, Pipers Hill, Leamington, for **Deppers Delight** 7598, born Jan. 6, bred by Captain M. Nickalls, Southam, Rugby; *s.* Sherfield Shackleton 815, *d.* Pipers Ophelia 2974 *by* Eastington Joker 277.

3861 V. (£1.)—JOHN L. HALL, West End Farm, Offley, Hitchin, for **Purbeck Nann** 8477, born April 4, bred by L. L. Batten, Glenjoyce, East Wellow, Romsey; *s.* Purbeck Pilot 1434, *d.* Purbeck Nann 2nd 3166 *by* Foxley Rentpayer 315.

3859 R. N.—MISSES F. E. DONISTHORPE and G. DE MONTGEON, for **Eastington Viscountess.**

H. C.—3870. C.—3869.

Class 433.—*Wessex Saddleback Sows, born in* 1923, *on or after July* 1.[1]

3880 I. (£10.)—T. L. MARTIN, Ashe Warren House, Overton, Hants, for **Ashe Lassie 1st** 10502, born July 24; *s.* Ashe Major 1st 1219, *d.* Oakley Lucy 2740 *by* Oakley Foch 216.

3881 II. (£5.)—MRS. ARTHUR SHERSTON, Otley Hall, Ipswich, for **Ashe Lassie 2nd** 10503, born July 24, bred by T. L. Martin, Ashe Warren House, Overton; *s.* Ashe Major 1st 1219, *d.* Oakley Lucy 2740 *by* Oakley Foch 216.

3872 III. (£3.)—AWEBRIDGE & Co., LTD., Northgrounds Farm, Chale, Isle of Wight, for **Awebridge Silver** 11198, born Aug. 21; *s.* Awebridge Pasha 1533, *d.* Awebridge Silvia 5366 *by* Mr. Hopeful of Awebridge 267.

3882 IV. (£2.)—DOUGLAS VICKERS, Temple Dinsley, Hitchin, for **Preston Roseleaf 1st** 10627, born July 10; *s.* Offa Emperor 1170, *d.* Preston Rosebud 1st 7295 *by* Norman King Offa 219.

3878 V. (£1.)—H. G. LAKIN, Pipers Hill, Leamington, for **Pipers Ursula** 10965, born Aug. 17; *s.* Eastington Forager 1577, *d.* Eastington Three of Hearts 5814 *by* Eastington Rowan 735.

Class 434.—*Two Wessex Saddleback Sows, born in* 1924.

3894 I. (£10.)—STANLEY WHITE, Offley Grange, Hitchin, for **Offa Eugene 1st** and **Offa Eugene 2nd**, born Jan. 3; *s.* Offa Mac 1st 1913, *d.* Empress of Offa 5th 10912 *by* Offa Canute 1251.

3887 II. (£5.)—MAJOR J. F. HARRISON, Kingswalden Bury, Hitchin, for **Kingswalden Otter 1st** and **Kingswalden Otter 2nd**, born Feb. 9; *s.* Besford Conjuror 1697, *d.* Norman Ottery 841 *by* Norman Hero 27.

3888 III. (£3.)—H. G. LAKIN, Pipers Hill, Leamington, for **Pipers Rosita** 10967 and **Pipers Rose** 10968, born Jan. 4; *s.* Sherfield Scott 1296, *d.* Pipers Helen 5617 *by* Sherfield Shackleton 815.

3885 IV. (£2.)—E. J. BEECHENER, Green Farm, Barton-in-the-Clay, Beds, for **Barton Verena 6th** and **Barton Verena 7th**, born Jan. 26; *s.* Barton Sensation 1602, *d.* Barton Verena 3rd 8286 *by* Barton Thatcher 1508.

3893 R. N.—DOUGLAS VICKERS, Temple Dinsley, Hitchin, for **Prestom Sunflower 1st** and **Preston Sunflower 2nd.**

C.—3884.

Essex.

Class 435.—*Essex Boars, born in or before* 1922.

3898 I. (£10, & R. N. for Champion.[2])—J. REGINALD TINNEY, Church End, Rickling, Newport Essex, for **Barnston Reignier** 771 (T.N. 2521), born Jan. 10, 1921, bred by A. and H. Turner, Barnston Hall, Dunmow; *s.* Barnston Baron 151, *d.* Barnston Regan 928.

3895 II. (£5.)—A. J. COUSINS, Cressing Lodge, Braintree, for **Tillyfour Angus** 811 (T.N. 3321), born July 4, 1921, bred by A. McCombie, Felstead; *s.* Rutlands Rufus 487, *d.* Tillyfour Kathleen 2570 *by* Porters Record 445.

3897 III. (£3.)—MISS S. KERRISON, Shipton-under-Wychwood, Oxon, for **Barling Soldier** 1037 (T.N. 2093), born Jan. 21, 1922, bred by Kemsley & Kemsley, Great Wakering; *s.* Chelmer Cornsack 745, *d.* Barling Poppy 4184 *by* Lashley Soviet 363.

3896 R. N.—W. G. HARVEY, Kentish Farm, Stisted, Braintree, for **Barling Sentinel.**

Class 436.—*Essex Boars, born in* 1923.

3900 I. (£10.)—A. J. COUSINS, Cressing Lodge, Braintree, for **Cressing Angus 4th** 1985 (T.N. 7525), born July 12; *s.* Tillyfour Angus 811, *d.* Cressing Duchess 8th 5924 *by* Cressing Major 269.

3904 II. (£5.)—J. REGINALD TINNEY, Church End, Rickling, Newport, Essex, for **Durrington Vicar** 1831 (T.N. 6894), born June 30, bred by Sir H. N. Goschen, K.B.E., Durrington House, Harlow; *s.* Chelmer Archbishop 789, *d.* Bovills Pride 5382.

3899 III. (£3.)—E. BARRACLOUGH, Ramsey Tyrrell, Ingatestone, for **Barling Sultan** 1493 (T.N. 5700), born Jan. 16, bred by Kemsley & Kemsley, Great Wakering; *s.* Chelmer Cornsack 755, *d.* Barling What's Wanted 4182 *by* Landwick King George 349.

Class 437.—*Essex Boars, born in* 1924.

3906 I. (£10.)—E. BARRACLOUGH, Ramsey Tyrrell, Ingatestone, for **Ramsey Playful** (T.N. 7941), born Jan. 21; *s.* Barling Sultan 1493, *d.* Ramsey Puffin 9818 *by* Peace Dashound 411.

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[1] Prizes, except Fourth and Fifth, given by the Wessex Saddleback Pig Society.

[2] Prizes, except Fourth and Fifth, given by the Essex Pig Society.

3907 **II.** (£5.)—A. J. Cousins, Cressing Lodge, Braintree, for boar, born Jan. 9; Fryerning Claudius 6th 1529, *d.* Cressing Duchess 3rd 3042 *by* Westfield Beau 547.

3910 **III.** (£3.)—A. T. Greenslade, Little Walden Park, Saffron Walden, for **Walden Generosity 2nd**, born Jan. 17; *s.* Margaretting Musketeer 1393, *d.* Alice of Walden 5502.

3905 **R. N.**—E. Barraclough, for **Ramsey Playfellow.**

Class 438.—*Essex Breeding Sows, born in or before* 1922.

3920 **I.** (£10.)—Kemsley & Kemsley, Great Wakering, for **Barling Mabel** 6662 (T.N. 4698), born Aug. 7, 1922, farrowed Jan. 31; *s.* Chelmer Cornsack 745, *d.* Barling Poppy 4184 *by* Lashley Soviet 363.

3926 **II.** (£5.)—J. Reginald Tinney, Church End, Rickling, Newport, Essex, for **Rickling Treasure 2nd** 6872 (T.N. 4708), born July 25, 1922, farrowed Feb. 10; *s.* Walden Champion 843, *d.* Rickling Treasure 4806 *by* Hubbards Admiral 45.

3919 **III.** (£3.)—Kemsley & Kemsley, for **Barling Diamond** 6644 (T.N. 4688), born July 25, farrowed Jan. 30; *s.* Chelmer Cornsack 745, *d.* Barling What's Wanted 4182 *by* Landwick King George 349.

3925 **IV.** (£2.)—W. Lawrence Taylor, Galleywood, Chelmsford, for **Ashingdon Queen** 4864 (T.N. 2065), born April 1, 1921, farrowed Jan. 5, bred by E. C. Imray, Ashingdon Hall, Rochford; *s.* Pound Chief 113, *d.* Galleywood Amy 4th 1482 *by* Clapton Prince 31.

3915 **V.** (£1.)—H. S. Ashton, Trueloves, Ingatestone, for **Trueloves Amethyst** 4716 (T.N. 3142), born Aug. 13, 1921, farrowed March 24; *s.* Barnston Claudius 1st 7, *d.* Porters Product 574.

3918 **R. N.**—W. G. Harvey, Kentish Farm, Stisted, Braintree, for **Barling Ladyship.**

Class 439.—*Essex Sows, born in* 1923.[1]

3927 **I.** (£10, & Champion.[2])—A. J. Cousins, Cressing Lodge, Braintree, for **Cressing Charity 11th** 11086 (T.N. 7543), born Aug. 6; *s.* Tillyfour Angus 811, *d.* Cressing Charity 1358 *by* Peace Benjamin 83.

3939 **II.** (£5.)—J. Reginald Tinney, Church End, Rickling, Newport, Essex, for **Rickling Primrose 3rd** 11420 (T.N. 7406), born June 27; *s.* Barnston Reignier 771, *d.* Thorley Primrose 4th 5164 *by* Chelmshoe Prince 2546.

3937 **III.** (£3.)—R. Browning Smith, The Brook, Great Tey, Kelvedon, for **Brook Ayah 7th** 5623, born Jan. 3; *s.* Howlets Victory, *d.* Brook Ayah.

3928 **IV.** (£2.)—Charles Cousins, Stisted, Braintree, for **Peace Gardenia** 8596, born Jan. 3; *s.* Barnston Claudius 11th 767, *d.* Peace Dunce 2110.

3941 **V.** (£1)—J. Reginald Tinney, for **Rickling Susie** 11450 (T.N. 7415), born Aug. 10; *s.* Barnston Reignier 771, *d.* Hubbards Pride 6314 *by* Cowlands Furrier 833.

3930 **R. N.**—A. T. Greenslade, Little Walden Park, Saffron Walden, for **Walden Faithful 8th.**

Class 440.—*Two Essex Sows, born in* 1924.

3943 **I.** (£10).—E. Barraclough, Ramsey Tyrrell, Ingatestone, for **Ramsey Pleasure** (T.N. 7938) and **Ramsey Pleasant** (T.N. 7940), born Jan. 13 and 7; *s.* Barling Sultan 1493, *ds.* Ramsey Punctual *by* Barnston Claudius 1st 7 and Ramsey Puzzle 9820 *by* Ramsey Picador 1079.

3944 **II.** (£5.)—A. J. Cousins, Cressing Lodge, Braintree, for sows, born Jan. 7; *s.* Tillyfour Angus 811, *d.* Cressing Hope 2nd 4950 *by* Westfield Beau 547.

3942 **III.** (£3.)—H. S. Ashton, Trueloves, Ingatestone, for **Trueloves June** (T.N. 7991) and **Trueloves May** (T.N. 7988), born Jan. 21 and 24; *ss.* Sedgemere Alexander 717 and Walden Generosity 993, *ds.* Trueloves Duchess *by* Barnston Claudius 1st 7 and Trueloves Joan 2608 *by* Rutlands Conqueror 1st 125.

3945 **IV.** (£2.)—Charles Cousins, Stisted, Braintree, for sows, born Jan. 3; *s.* Peace Gamester 1543, *d.* Peace Emma 5274.

3950 **V.** (£1.)—R. Browning Smith, The Brook, Great Tey, Kelvedon, for **Brook Begonia 1st and 2nd**, born Jan. 5; *s.* Cressing Duke 13th, *d.* Brook Ayah 2nd *by* Brook Masterpiece.

3947 **R. N.**—A. T. Greenslade, Little Walden Park, Saffron Walden, for **Walden Alice 3rd and Walden Amy.**

Long White Lop-Eared.

Class 441.—*Long White Lop-Eared Boars, born in or before* 1924.

3955 **I.** (£10.)—Henry J. Kingwell, Bow Grange, Totnes, for **Yealmpstone Someday** 346, born March 2, 1923, bred by W. H. Neal, Yealmpstone, Plympton; *s.* Quither Masterpiece 122, *d.* Yealmpstone Queen 71.

3960 **II.** (£5.)—William J. Westlake, Godwell, Ivybridge, for **Godwell Surveyor** 652, born Oct. 20, 1923; *s.* Lukeland Hero 342, *d.* Godwell Buttercup 1397 *by* Yealmpstone Right Sort 164.

3959 **III.** (£3.)—William E. Smith, Junr., Wenhaston Hall, Halesworth, for **Devonshire Someday** 402, born Feb. 5, 1923, bred by H. J. Kingwell, Bow Grange, Totnes; *s.* Torland Jumbo 54, *d.* Ipplepen Primula 261 *by* Yeatt Masterman.

3957 **R. N.**—W. H. Kittow & Son, Ardeley, Stevenage, for **Whiteford Ranger.**

C.—3956.

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[1] Silver Champion Cup, value Ten Guineas, given by the Essex Pig Society for the best Boar or Sow in Classes 435 to 439.

[2] Prizes, except Fourth and Fifth, given by the Essex Pig Society.

Class 442.—*Long White Lop-Eared Breeding Sows, born before July* 1, 1923.[1]

3965 I. (£10.)—Alfred A. Partridge, Mordref, Plympton, Devon, for **Priory Lassie 823**, born Sept. 14, 1922, farrowed April 6, 1924; *s.* Quither Masterpiece, *d.* Torlands Amiable 159 *by* Roborough Jumbo.

3966 II. (£5.)—William E. Smith, Junr., Wenhaston Hall, Halesworth, for **Yealmpstone Queen 71**, born Dec. 11, 1917, farrowed Feb. 4, bred by W. H. Neal, Lower Yealmpstone, Plympton; *s.* Huxhams Boar.

3967 III. (£3.)—Stanley White, Offley Grange, Hitchin, for **Waddeton Offling Anna 1253**, born Feb. 3, 1923, farrowed March 9, bred by Rendell & Sawdge, Totnes; *s.* Netherton Defender 140, *d.* Waddeton No. 6 223.

3961 R. N.—Cross, Hall & Hall, Nether Hall, Bradfield, Manningtree, for **Devonshire Primula.**

Class 443.—*Long White Lop-Eared Sows, born on or after July* 1, 1923.[1]

3970 I. (£10.)—Henry J. Kingwell, Bow Grange, Totnes, for **Devonshire Duchess 2165**, born July 2, 1923; *s.* Yealmpstone Pan Yan 148, *d.* Ipplepen White Heather 255 *by* Yeatt Masterman.

3971 II. (£5.)—Henry J. Kingwell, for **Devonshire Enchantress 2171**, born July 2, 1923; *s.* Yealmpstone Pan Yan 148, *d.* Ipplepen White Heather 255 *by* Yeatt Masterman.

3975 III. (£3.)—William J. Westlake, Godwell Farm, Ivybridge, for **Godwell Sunbeam 1973**, born July 27; *s.* Yealmpstone Right Sort 164, *d.* Godwell Sunshine 1895.

3973 R. N.—Alfred A. Partridge, Mordref, Plympton, for **Priory Amiable 2nd.**

H. C.—3974.

FARM AND DAIRY PRODUCE OF THE UNITED KINGDOM.

Butter.

Class 444.—*Two Pounds of Fresh Butter, without any salt, made up in plain pounds, from the milk of Channel Island, Devon or South Devon Cattle and their crosses.*

8 I. (£4.)—J. Pierpont Morgan, Wall Hall, Aldenham, Watford.
3 II. (£2.)—Mrs. J. Hearn, Sydenham Damarel, Tavistock.
1 III. (£1.)—T. R. Bolitho, Trengwainton, Penzance.
6 R. N.—Miss Jean MacGillivray, South Holt, Danbury, Chelmsford.
H. C.—4, 7. C.—12.

Class 445.—*Two Pounds of Fresh Butter, without any salt, made up in plain pounds, from the milk of cattle of any breeds or cross other than those mentioned in Class 444.*

19 I. (£4.)—Mrs. C. B. Oxenham, Burn Town, Marytovy, Tavistock.
13 II. (£2.)—Mrs. Beadle, Broadless Gate, Newbiggin, Middleton-in-Teesdale.
17 III. (£1.)—Mrs. W. E. Mudd, Slade House, Thornthwaite, Darley, Harrogate.
15 R. N.—Lady Kathleen Curzon-Herrick, Woodhouse, Loughborough.

Class 446.—*Two Pounds of Fresh Butter, slightly salted, made up in plain pounds, from the milk of Channel Island, Devon or South Devon Cattle and their crosses.*

33 I. (£4.)—Mrs. John Way, West Bridge, Bishopsnympton, Barnstaple.
27 II. (£2.)—Miss Jean MacGillivray, South Holt, Danbury, Chelmsford.
21 III. (£1.)—T. R. Bolitho, Trengwainton, Penzance.
28 R. N.—Mrs. L. R. Mildon, Mead Down, Rackenford, Crediton.
H. C.—24, 30. C.—23.

Class 447.—*Two Pounds of Fresh Butter, slightly salted, made up in plain pounds, from the milk of cattle of any breed or cross other than those mentioned in Class 446.*

39 I. (£4.)—Mrs. C. B. Oxenham, Burn Town, Marytovy, Tavistock.
37 II. (£2.)—Mrs. W. E. Mudd, Slade House, Thornthwaite, Darley, Harrogate.
41 III. (£1.)—Miss K. Thomas, Blaenbrymsh, Llanddew, Brecon.

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[1] Prizes given by the Long White Lop-Eared Pig Society.

Class 448.—*Three Pounds of Fresh Butter, slightly salted, made up in pounds in the most attractive marketable designs.*

46 I. (£4.)—J. Pierpont Morgan, Wall Hall, Aldenham, Watford.
51 II. (£2.)—Mrs. John Way, West Bridge, Bishopsnympton, Barnstaple.
45 III. (£1.)—Mrs. L. R. Mildon, Mead Down, Rackenford, Crediton.
43 R. N.—Lady Kathleen Curzon-Herrick, Woodhouse, Loughborough.

Class 449.—*Three Pounds of Fresh Butter, slightly salted, made up in pounds, and packed in non-returnable boxes for transmission by rail or parcel post.*

53 I. (£4.)—Mrs. L. R. Mildon, Mead Down, Rackenford, Crediton.
58 II. (£2.)—Mrs. John Way, West Bridge, Bishopsnympton, Barnstaple.
52 III. (£1.)—Lady Kathleen Curzon-Herrick, Woodhouse, Loughborough.
55 R. N.—The Marquis of Northampton, D.S.O., Castle Ashby, Northampton.

Cheese.

Made in 1924.

Class 450.—*Two Cheshire Cheeses (Coloured), not less than* 40 *lb.* each.

68 I. (£5.)—George Toft, Chapel House Farm, Wervin, Chester.
66 II. (£3.)—Ruyton Co-operative Dairies, Ltd., Ruyton-Eleven-Towns, Shrewsbury.
67 III. (£2.)—Philip Sumner, Ivy House, Frith, Wrenbury, Nantwich.
70 R. N.—C. Weston, High Fields, Baddiley, Nantwich.

Class 451.—*Two Cheshire Cheeses (Uncoloured), not less than* 40 *lb. each.*

74 I. (£5.)—Mrs. W. E. Moore, Baddiley Farm, Nantwich
79 II. (£3.)—C. Weston, High Fields, Baddiley, Nantwich.
78 III. (£2.)—Philip Sumner, Ivy House, Frith, Wrenbury, Nantwich.
77 R. N.—Ruyton Co-operative Dairies, Ltd.

Class 452.—*Two Cheddar Cheeses, not less than* 50 *lb. each.*

81 I. (£5.)—F. G. Nurse & Sons, Wick Farm, Coxley, Wells.
83 II. (£3.)—H. H. Pickford, Manor Farm, Patney, Devizes.
82 III. (£2.)—James Picken, Torrs Farm, Kirkcudbright.

Class 453.—*Two Cheddar Truckles.*

88 I. (£5.)—H. H. Pickford, Manor House, Patney, Devizes.
90 II. (£3.)—Edward Walter, West Forest Farm, Gaer Hill, Maiden Bradley, Bath.
87 III. (£2.)—Mrs. Evans, Crickleaze House, Coombe St. Nicholas, Chard.
86 R. N.—Miss C. Edwards, Cefn Poeth Farm, Lanfedw, Cardiff.
H. C.—84.

Class 454.—*Six Stilton Cheeses.*

104 I. (£5.)—Tuxford & Nephews, Thorpe End Dairy, Melton Mowbray.
105 II. (£3.)—United Dairies (Wholesale), Ltd., Harby, Melton Mowbray.
98 III. (£2.)—Long Clawson Dairy, Ltd., Long Clawson, Melton Mowbray.
92 IV. (10s.)—Colston Bassett and District Dairy, Ltd., Colston Bassett, Bingham.
94 V. (5s.)—Emberlin & Co., Ltd., The Dairy, Wymeswold, Loughborough.
103 R. N.—Henry Thompson & Sons, Ltd., Nether Broughton, Melton Mowbray.
H. C.—101, 107. C.—108.

Class 455.—*Two Stilton Cheeses.*

124 I. (£5.)—United Dairies (Wholesale), Ltd., Harby, Melton Mowbray.
123 II. (£3.)—Tuxford & Nephews, Thorpe End Dairy, Melton Mowbray.
119 III. (£2.)—J. M. Nuttall & Co., Ltd., Dove Dairy, Hartington, Buxton.
116 IV. (10s.)—Long Clawson Dairy, Ltd., Long Clawson, Melton Mowbray.
122 V. (5s.)—Henry Thompson & Sons, Ltd., Nether Broughton, Melton Mowbray.
109 R. N.—Colston Bassett and District Dairy, Ltd.
H. C.—117, 125, 126. C.—112, 115.

Class 456.—*Two Wensleydale Cheeses (Stilton shape).*

132 I. (£5.)—Miss M. M. Sykes, Linton Spring Dairy, Wetherby.
129 II. (£3.)—Miss B. J. Mudd, Aldborough Dairy, Boroughbridge.
130 III. (£2.)—Dr. C. Breckon-Robinson, Sherwood, Barnard Castle.
131 R. N.—Alfred Rowntree, Son & Wright, Coverham, Middleham.

Class 457.—*Four Leicestershire Cheeses.*

138 I. (£5.)—Herbert Richardson, The Orchards, Cotesbach, Rugby.
139 II. (£3.)—S. Tallis, Frolesworth, Rugby.
136 III. (£2.)—John Harrison, Pailton, Rugby.
140 R. N.—Francis W. Tomlinson, Home Farm, Ashby Parva, Rugby.

Class 458.—*Two Leicestershire Cheeses.*

145 I. (£5.)—Herbert Richardson, The Orchards, Cotesbach, Rugby.
143 II. (£3.)—John Harrison, Pailton, Rugby.
142 III. (£2.)—East Anglian Institute of Agriculture, Chelmsford.
146 R. N.—S. Tallis, Frolesworth, Rugby.

Class 459.—*Two Staffordshire or Derbyshire Cheeses.*

148 I. (£5.)—East Anglian Institute of Agriculture, Chelmsford.
149 II. (£3.)—John Harrison, Pailton, Rugby.

Class 460.—*Two Caerphilly Cheeses.*

153 I. (£5.)—Cox & Sons, The Creamery, Haverfordwest.
151 II. (£3.)—Cheddar Valley Dairy Co., Ltd., Rooksbridge Factory, Axbridge.
156 III. (£2.)—United Dairies (Wholesale), Ltd., Wells.
155 R. N.—Mrs. Rosewell, Bradon Farm, Isle Brewers, Taunton.

Class 461.—*Two Small Cheeses, not exceeding* 6 *lb. each, of Cheddar or Cheshire character.*

163 I. (£4.)—H. H. Pickford, Manor Farm, Patney, Devizes.
162 II. (£2.)—James Picken, Torrs Farm, Kirkcudbright
160 III. (£1.)—Mrs. W. E. Moore, Baddiley Farm. Nantwich.
158 R. N.—Miss C. Edwards, Cefn Poeth Farm, Lanfedw, Cardiff.

Class 462.—*Two Small Cheeses, not exceeding* 6 *lb. each, of Stilton or Wensleydale character.*

168 I. (£4.)—J. M. Nuttall & Co., Ltd., Dove Dairy, Hartington, Buxton.
176 II. (£2.)—Misses M. F. and J. Webster, The Dairy, Saxelbye, Melton Mowbray.
172 III. (£1.)—Miss M. M. Sykes, Linton Spring Dairy, Wetherby.
167 R. N.—Miss B. J. Mudd, Aldborough Dairy, Boroughbridge.

Class 463.—*Two Soft Cheeses, made from Whole Milk.*

180 I. (£4.)—East Anglian Institute of Agriculture, Chelmsford.
182 II. (£2.)—Miss B. J. Mudd, Aldborough Dairy, Boroughbridge.
178 III. (£1.)—Alfred Barker, Blackbrook Farm, Shepsted, Loughborough.
184 R. N.—Studley College, Studley, Warwickshire.
H. C.—186.

Class 464.—*Two Soft Cheeses, made from Cream without the addition of Rennet.*

191 I. (£4.)—Lady Kathleen Curzon-Herrick, Woodhouse, Loughborough.
200 II. (£2.)—E. G. Neal, Elm Tree Farm, Kirby Road, Glenfield, Leicester.
197 III. (£1.)—F. Hack, The High Class Dairy, Ashby Road, Loughborough.
196 IV (10s.)—Miss M. E. Gordon, 51a, Ashby Road, Loughborough.
192 V. (5s.)—East Anglian Institute of Agriculture, Chelmsford.
188 R. N.—Bennett & Howard, Thornbury, Glos.
H. C.—190. C.—194.

Cider.

Class 465.—*Six Bottles of Dry Cider, made in* 1923.

204 II. (£2), & 205 III. (£1.)—Herbert J. Davis, Goldsborough Farm, Sutton Montis, Sparkford, Somerset.

Class 466.—*Six Bottles of Sweet Cider, made in* 1923.

215 I. (£3), 214 II. (£2), & 213 V. (5s.)—Herbert J. Davis, Goldsborough Farm, Sutton Montis, Sparkford, Somerset.
212 III. (£1), & 211 IV. (10s.)—Sir Ian Heathcoat Amory, Bt., Knightshayes Court, Tiverton.

Class 467.—*Six Bottles of Cider, made previous to* 1923.

224 I. (£3), & 225 II. (£2.)—Sir Ian Heathcoat Amory, Bt., Knightshayes Court, Tiverton.
230 III. (£1.)—Quantock Vale Cider Co., Ltd., North Petherton, Bridgwater.

Wool.[1]

Of 1924 *Clip.*

Class 468.—*Three Fleeces of Oxford Down Wool.*

234 I. (£3), & 233 II. (£2.)—George Harrison, Gainford Hall, Darlington.
237 III. (£1.)— Hugh W. Stilgoe, The Grounds, Adderbury, Banbury.
238 IV. (10s.)—C. S. J. Wakefield, Langford Downs, Lechlade.

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[1] The Second and Third Prizes in these Classes were given by the respective Flock Book Societies.

Class 469.—*Three Fleeces of Shropshire Wool.*

244 I. (£3), & 245 II. (£2.)—E. Craig Tanner, Eyton-on-Severn, Cross Houses, Salop.
240 III. (£1.)—William Everall, Shrawardine Castle, Shrewsbury.
H. C.—241, 242, 243.

Class 470.—*Three Fleeces of Southdown Wool.*

247 I. (£3), & 246 II. (£2.)—Lady Ludlow, Luton Hoo, Luton.
248 III. (£1.)—J. Pierpont Morgan, Wall Hall, Aldenham, Watford.

Class 471.—*Three Fleeces of Hampshire Down Wool.*

250 I. (£3), & 251 II. (£2.)—William Todd, The Grange, Little Ponton, Grantham.

Class 472.—*Three Fleeces of Suffolk Wool.*

252 I. (£3.)—F. M. L. Slater, Weston Colville, Cambridge.
253 II. (£2.)—R. Worsley Worswick, Acton Round, Bridgnorth.

Class 473.—*Three Fleeces of Dorset Horn Wool.*

254 I. (£3), & 255 II. (£2.)—Alfred Read, Lower Farm, Hilton, Blandford.

Class 474.—*Three Fleeces of Ryeland Wool.*

262 I. (£3), & 261 II. (£2.)—David J. Thomas, Talachddu, Brecon.
259 III. (£1.)—F. W. Morris, Brynderwen Farm, Llangasty, Talyllyn, Brecon.

Class 475.—*Three Fleeces of Kerry Hill (Wales) Wool.*

264 I. (£3.)—Thomas Jones, Great Weston Farm, Montgomery.
263 II. (£2.)—Ben Alderson, Glanmiheli, Kerry, Mont.
265 III. (£1.)—E. D. Moore, Brampton Brian, Herefordshire.
H. C.—266.

Class 476.—*Three Fleeces of Lincoln Wool.*

269 I. (£3.)—W. H. Rawnsley and C. W. Tindall, Well Vale, Alford, and Park House, Louth.
270 II. (£2.)—Thomas Spink & Sons, Hunmanby, Yorks.
271 III. (£1.)—Robert Turner & Son, Stanford-on-Soar, Loughborough.

Class 477.—*Three Fleeces of Leicester Wool.*

272 I. (£3), & 273 II. (£2.)—George Harrison, Gainford Hall, Darlington.
275 III. (£1.)—C. H. Simpson & Sons, Castle House, Hunmanby, Yorks.

Class 479.—*Three Fleeces of Wensleydale Wool.*

280 I. (£3.)—John W. Greensit, Holme-on-Swale, Thirsk.
282 II. (£2)—John Percival, East House, Carperby, Yorks.
278 III. (£1.)—The Marquis of Bute, K.T., Dumfries House Home Farm, Old Cumnock.
H.C.—279.

Class 480.—*Three Fleeces of Kent or Romney Marsh Wool, from Rams of any age.*

285 I. (£3.)—J. Egerton Quested, The Firs, Cheriton, Kent.
284 II. (£2.)—L. H. and G. W. Finn, Westwood Court, Faversham.
283 III. (£1.)—Arthur Finn, Westbroke House, Lydd, Kent.

Class 481.—*Three Fleeces of Kent or Romney Marsh Wool, from Ewe Tegs.*

287 I. (£3.)—L. H. and G. W. Finn, Westwood Court, Faversham.
288 II. (£2.)—J. Egerton Quested, The Firs, Cheriton, Kent.
286 III. (£1.)—B. Montague Ede, Plurrenden, Woodchurch, Ashford, Kent.

Class 482.—*Three Fleeces of Kent or Romney Marsh Wool, excluding Rams and Ewe Tegs.*

294 I. (£3.)—J. Egerton Quested, The Firs, Cheriton, Kent.
291 II. (£2.)—L. H. and G. W. Finn, Westwood Court, Faversham.
295 III. (£1.)—R. Stanley Strouts, Singleton Manor, Great Chart, Ashford, Kent.

Class 483.—*Three Fleeces of Cotswold Wool.*

296 I. (£3.)—William Garne, Ablington, Fairford, Glos.

Class 484.—*Three Fleeces of Exmoor Horn Wool.*

297 I. (£3), & 298 II. (£2.)—T. C. Pearse, Leigh Farm, Dulverton.
299 III. (£1.)—D. J. Tapp, Highercombe, Dulverton.

POULTRY.

By "Cock," "Hen," "Gander," and "Goose," are meant birds hatched previous to January 1, 1924; and by "Cockerel" and "Pullet" are meant birds hatched in 1924.

The Prizes in each Class are as follows: **First Prize, 40s. Second Prize, 30s. Third Prize, 20s. Fourth Prize, 10s. Fifth Prize, 5s.**

Special Prizes were given in the Poultry Classes by the following Clubs: Dorking, Sussex, White Wyandotte, Columbian Wyandotte, Australorp, British Rhode Island Red, Barred Plymouth Rock, Buff Plymouth Rock, and Indian Runner Duck.

Class 485.—*Dorking Cocks.*

7 I. & Special & 3 R. N.—A. J. Major, Ditton, Langley, Bucks.
1 II.—Charles Aitkenhead, Carr House Farm, New Seaham.
8 III.—W. G. Watson, Rusper Road, Horsham.

Class 486.—*Dorking Hens.*

10 I. & R. N. for Special, & 14 II.—Charles Aitkenhead, Carr House Farm, New Seaham.
12 III. & 15 R. N.—A. J. Major, Ditton, Langley, Bucks.
H. C.—11.

Class 487.—*Dorking Cockerels.*

17 I.—Thomas Briden, Cononley, via Keighley.
19 II.—Charles Aitkenhead, Carr House Farm, New Seaham.
16 III.—Brig.-Gen. E. W. D. Baird, Reedyloch, Edrom, Berwickshire.
20 R. N.—A. J. Major, Ditton, Langley, Bucks.

Class 488.—*Dorking Pullets.*

24 I.—Thomas Briden, Cononley, via Keighley.
26 II. & 23 R. N.—A. J. Major, Ditton, Langley, Bucks.
22 III.—Charles Aitkenhead, Carr House Farm, New Seaham.

Class 489.—*Croad Langshan Cocks or Cockerels.*

36 I.—R. Anthony, Home Farm, Euxton, Chorley.
30 II.—C. F. Barker, Waverley, Bray Lane, Coventry.
31 III.—William Swindell & Son, 5 Malthouse Row, Matlock Green, Matlock.
39 IV.—Alfred Giddings, Hillcrest, Chapel-en-le-Frith.
38 V.—Horace R. Jones, 25 Penrhiwfer Road, Tonyrefail, Glam.
40 R. N.—Lindley & Rogers, Gate House Farm, Hurstpierpoint.
H. C.—33. C.—29.

Class 490.—*Croad Langshan Hens or Pullets.*

45 I.—William Swindell & Son, 5 Malthouse Row, Matlock Green, Matlock.
54 II.—Alfred Giddings, Hillcrest, Chapel-en-le-Frith.
47 III.—R. O. Ridley, Docking Hall, Kings Lynn.
42 IV.—Henry Heslop, Chapel House, Waitby, Kirkby Stephen.
51 V.—E. A. Merckel, Kingswood Poultry Farm, Warlingham.
53 R. N.—Lindley & Rogers, Gate House Farm, Hurstpierpoint.
H. C.—50. C.—49.

Class 491.—*Brahma or Cochin Cocks or Cockerels.*

60 I.—Thomas Gascoigne, North Muskham, Newark.
67 II.—Sidney J. Ballard, The Pognells, Park Avenue, Chelmsford.
57 III. & 61 V.—Col. R. S. Williamson, The Grange, Hednesford, Staffs.
58 IV.—G. W. Henshall, The Hollies, Timperley, Cheshire.
68 R. N.—E. Birkett, Beddlestone Farm, Brook, Ashford, Kent.
H. C.—62, 65, 66.

Class 492.—*Brahma or Cochin Hens or Pullets.*

74 I.—Cunliffe-Owen Poultry Farm, Ltd., Loughborough.
73 II.—Mrs. W. Thompson, Old Chilwell, Nottingham.
71 III. & 75 R. N.—Col. R. S. Williamson, The Grange, Hednesford, Staffs.

Class 493.—*Red Sussex Cocks.*

83 I. & R. N. for Special, & 87 R. N.—Major J. A. Morrison, D.S.O., Basildon Park, Reading.
79 II.—James Russel, Mapleton, Four Elms, Edenbridge.
81 III.—Mrs. M. A. Grant, Westlands, Horley.
84 IV.—Capt. H. de B. C. Garfit, Nightingale Place, Polegate.
H. C.—82. C.—85.

Class 494.—*Red Sussex Hens.*

95 I. & Special.—Blaksley & Blyth, West Moors, Dorset.
90 II. & 96 III.—Major J. A. Morrison, D.S.O., Basildon Park, Reading.
98 IV.—A. Leon Adutt, The Chestnuts, Great Shelford, Cambridge.
97 R. N.—Mrs. M. A. Grant, Westlands, Horley.
H. C.—91. C.—94.

Class 495.—*Red Sussex Cockerels.*

104 I. & 101 R. N.—Mrs. M. A. Grant, Westlands, Horley.
99 II.—Major J. A. Morrison, D.S.O., Basildon Park, Reading.
102 III.—Mrs. M. M. Marston, Highwoods, Whydown, Bexhill.
H. C.—103.

Class 496.—*Red Sussex Pullets.*

111 I. & 108 III.—Mrs. M. A. Grant, Westlands, Horley.
106 II.—A. Leon Adutt, The Chestnuts, Great Shelford, Cambridge.
105 R. N.—Mrs. M. M. Marston, Highwoods, Whydown, Bexhill.

Class 497.—*Light Sussex Cocks.*

126 I. & Special & 118 II.—James Russel, Mapleton, Four Elms, Edenbridge.
125 III.—A. J. Falkenstein, Rotherfield, Sussex.
134 IV.—Lindley & Rogers, Gate House Farm, Hurstpierpoint.
128 V.—William Winter, Hancox Farm, Whattington, Battle.
141 R. N.—Park House Poultry Farm, Burstow, Surrey.
H. C.—121. C.—123.

Class 498.—*Light Sussex Hens.*

142 I.—James Russel, Mapleton, Four Elms, Edenbridge.
151 II.—Mrs. M. A. Grant, Westlands, Horley.
149 III.—A. Leon Adutt, The Chestnuts, Great Shelford, Cambridge.
152 IV.—William Winter, Hancox Farm, Whatlington, Battle.
154 V.—Blaksley & Blyth, West Moors, Dorset.
160 R. N.—Lindley & Rogers, Gate House Farm, Hurstpierpoint.
H. C.—158. C.—155.

Class 499.—*Light Sussex Cockerels.*

169 I.—Major J. A. Morrison, D.S.O., Basildon Park, Reading.
196 II.—Capt. A. D. Haufman, M.C., Stallcombe House, Woodbury, Exeter.
190 III.—Major R. Godfrey Mundy, Raleigh House, Barnstaple.
181 IV. & 168 V.—James Russel, Mapleton, Four Elms, Edenbridge.
164 R. N.—C. N. Goode, Bletsoe, Bedford.
H. C.—172. C.—192.

Class 500.—*Light Sussex Pullets.*

224 I. & R. N. for Special.—A. J. Falkenstein, Rotherfield, Sussex.
209 II.—Mrs. M. M. Marston, Highwoods, Whydown, Bexhill.
200 III. & 210 IV.—Major J. A. Morrison, D.S.O., Basildon Park, Reading.
232 V.—A. Leon Adutt, The Chestnuts, Great Shelford, Cambridge.
226 R. N.—A. Amey, Beech Lodge Farm, Beech Hill, Wadhurst.
H. C.—211. C.—205.

Class 501.—*Speckled Sussex Cocks.*

243 I. & R. N. for Special.—R. Anthony, Home Farm, Euxton, Chorley.
246 II.—A. J. Falkenstein, Rotherfield, Sussex.
238 III.—James Russel, Mapleton, Four Elms, Edenbridge.
245 IV.—Blaksley & Blyth, West Moors, Dorset.
236 R. N.—Major J. A. Morrison, D.S.O, Basildon Park, Reading.
H. C.—241. C.—239.

Class 502.—*Speckled Sussex Hens.*

253 I. & 247 III.—Blaksley & Blyth, West Moors, Dorset.
256 II.—Desborough Dobson, Lodge Farm, Cuckfield.
249 IV.—R. Anthony, Home Farm, Euxton, Chorley.
250 V.—Capt. T. M. Whittaker, Pen-y-Bryn Farm, Portmadoc.
251 R. N.—A. J. Falkenstein, Rotherfield, Sussex.
H. C.—259. C.—254.

Class 503.—*Speckled Sussex Cockerels.*

260 I. & 263 II.—James Russel, Mapleton, Four Elms, Edenbridge.
261 III.—Capt. T. M. Whittaker, Pen-y-Bryn Farm, Portmadoc.

Class 504.—*Speckled Sussex Pullets.*

270 I. & Special.—E. G. Ryall, Grove Park, Tavistock.
273 II.—James Russel, Mapleton, Four Elms, Edenbridge.
271 III.—A. J. Falkenstein, Rotherfield, Sussex.
265 IV. & 269 R. N.—Capt. T. M. Whittaker, Pen-y-Bryn Farm, Portmadoc.
H. C.—266. C.—268.

Class 505.—*Brown Sussex Cocks.*

277 I. & Special & 281 III.—Mrs. M. A. Grant, Westlands, Horley.
280 II.—Charles Hardy, Argos Hill, Rotherfield.
279 R. N.—Fleetwood Ashburnham, Guestling, Hastings.
H. C.—275. C.—276.

Class 506.—*Brown Sussex Hens.*

289 I. & R. N. for Special.—Mrs. M. A. Grant, Westlands, Horley.
288 II.—Fleetwood Ashburnham, Guestling, Hastings.
283 III.—Charles Hardy, Argos Hill, Rotherfield.
285 R. N.—Blaksley & Blyth, West Moors, Dorset.
H. C.—282.

Class 507.—*Brown Sussex Cockerels.*

290 I.—Fleetwood Ashburnham, Guestling, Hastings.
291 II.—Charles Hardy, Argos Hill, Rotherfield.

Class 508.—*Brown Sussex Pullets.*

295 I. & 292 III.—Desborough Dobson, Lodge Farm, Cuckfield.
293 II.—Charles Hardy, Argos Hill, Rotherfield.
294 R. N.—Fleetwood Ashburnham, Guestling, Hastings.

Class 509.—*White Wyandotte Cocks.*

296 I.—Lord Dewar, Homestall, East Grinstead.
304 II.—Jonathan Hopkins, Davenshaw House, Buglawton, Congleton.
301 III.—R. Anthony, Home Farm, Euxton, Chorley.
305 R. N.—Wilfrid W. Woodward, Ffrome Valley Poultry Farm, Bishops Frome, Worcester.
C.—300.

Class 510.—*White Wyandotte Hens.*

306 I. & 314 IV.—Lord Dewar, Homestall, East Grinstead.
315 II.—B. R. Irons, Edward Street, Dunstable.
316 III.—R. Anthony, Home Farm, Euxton, Chorley.
317 V. & 308 R. N.—C. N. Goode, Bletsoe, Bedford.

Class 511.—*White Wyandotte Cockerels.*

324 I. & Special.—C. N. Goode, Bletsoe, Bedford.
321 II. & R. N. for Special.—Lord Dewar, Homestall, East Grinstead.
328 III.—R. Anthony, Home Farm, Euxton, Chorley.
334 IV.—James Stubbs, Ghyll Mill, New Hutton, Kendal.
323 V.—Mrs. S. T. Stevenson, Swepston, Leicester.
335 R. N.—F. Jeffs, Wolston, Coventry.
H. C.—333.

Class 512.—*White Wyandotte Pullets.*

340 I. & Special.—R. Anthony, Home Farm, Euxton, Chorley.
342 II. & R. N. for Special.—C. N. Goode, Bletsoe, Bedford.
337 IV.—Lord Dewar, Homestall, East Grinstead.
339 V.—A. H. Bowman, Long Street, Easingwold.
341 R. N.—Mrs. S. T. Stevenson, Swepston, Leicester.
H. C.—346. C.—349.

Class 513.—*Gold or Silver Laced Wyandotte Cocks or Cockerels.*

351 I. & 355 R. N.—Robert McCrone, Poundland, Dunscore, Auldgirth, Dumfriesshire.
356 II.—R. Anthony, Home Farm, Euxton, Chorley.
352 III.—Albert Holden, Shottle House, Shottle Gate, Derby.
H. C.—353.

Class 514.—*Gold or Silver Laced Wyandotte Hens or Pullets.*

368 I.—R. Anthony, Home Farm, Euxton, Chorley.
359 II.—F. R. Maskery, 58 St. Edward Street, Leek.
361 III.—Thomas Lockwood, The Woodlands, Pateley Bridge, Harrogate.
362 IV.—Herbert Spensley, Oaks Farm, Menston, via Leeds.
H. C.—366.

Class 515.—*Columbian Wyandotte Cocks or Cockerels.*

373 III. & 370 R. N.—L. H. Wace, Kingsland Poultry Farm, Solway Ash, Bridport.

Class 516.—*Columbian Wyandotte Hens or Pullets.*

379 III.—L. H. Wace, Kingsland Poultry Farm, Solway Ash, Bridport.
382 R. N.—William C. Yeoman, Marsden Hall, Nelson.

Class 517.—*Wyandotte Cocks or Cockerels, any other colour.*

384 I.—F. Vernon Hewitt, Oaklands, Quorn, Loughborough.
393 II.—Jonathan Hopkins, Davenshaw House, Buglawton, Congleton.
395 III.—William Lear, Howard Cottage, Wetheral, Carlisle.
397 IV.—J. Swindell, Hill Farm, Wormhill, Buxton.
391 V.—B. C. Kidger, Ilam Meadows, Ashbourne.
385 R. N.—Col. R. S. Williamson, The Grange, Hednesford, Staffs.
H. C.—392. C.—394.

Class 518.—*Wyandotte Hens or Pullets, any other colour.*

405 I.—J. A. Boardley, Slyne Road, Lancaster.
404 II.—F. Vernon Hewitt, Oaklands, Quorn, Loughborough.
402 III.—Col. R. S. Williamson, The Grange, Hednesford, Staffs.
400 R. N.—Robert Bell, Wetheral, Carlisle.

Class 519.—*Buff Orpington Cocks.*

414 I.—John Brooks, Myrtle Poultry Farm, Irlam, Manchester.
408 II. & 415 IV.—W. J. Golding, Bowens, Penshurst, Kent.
413 III.—R. Anthony, Home Farm, Euxton, Chorley.
418 V.—A. Hammond Browne, 53½ Norfolk Street, Kings Lynn.
409 R. N.—Harold Corrie, Heath House Farm, Lowfield Heath, Surrey.
H. C.—410.

Class 520.—*Buff Orpington Hens.*

426 II.—John Brooks, Myrtle Poultry Farm, Irlam, Manchester.
421 III. & 425 IV.—R. N. Woodend, Hill House Poultry Farm, Burton.
423 R. N.—Dr. E. S. Jackson, Poultry Farm, Carnforth.
H. C.—428.

Class 521.—*Black Orpington Cocks.*

435 I.—Miss N. Shanks, Stetchworth, Newmarket.
434 II.—R. Anthony, Home Farm, Euxton, Chorley.
432 III.—Jonathan Hopkins, Davenshaw House, Buglawton, Congleton.
439 IV.—W. J. Child, Fernbank, St. Ives, Ringwood.
437 R. N.—Thomas C. Pinniger, The Walnuts, Westbury.
H. C.—429.

Class 522.—*Black Orpington Hens.*

442 I.—Samuel R. Hooper, Cuddra House, Par Station, Cornwall.
444 II.—Jonathan Hopkins, Davenshaw House, Buglawton, Coventry.
440 III.—Mrs. Geoffrey Spencer, Reedley, Bexhill.
445 R. N.—Albert J. Kilby, 49 Clarendon Road, Luton.

Class 523.—*Orpington Cocks, any other colour.*

448 I.—Lord Dewar, Homestall, East Grinstead.
449 II.—Lieut.-Col. H. Watts, Haslington Hall, Crewe.
453 III.—George Dickson, Hollin Ridge, Wormald Green, Harrogate.
451 R. N.—Harold Corrie, Heath House Farm, Lowfield Heath, Surrey.
H. C.—454.

Class 524.—*Orpington Hens, any other colour.*

455 I.—Lord Dewar, Homestall, East Grinstead.
456 II.—Lieut.-Col. H. Watts, Haslington Hall, Crewe.
457 III.—Harold Corrie, Heath House Farm, Lowfield Heath, Surrey.
458 R. N.—Cunliffe-Owen Poultry Farm, Ltd., Loughborough.

Class 525.—*Orpington Cockerels, any colour.*

461 I.—W. J. Child, Fernbank, St. Ives, Ringwood.
463 II.—Harold Corrie, Heath House Farm, Lowfield Heath, Surrey.
459 III.—W. J. Golding, Bowens, Penshurst, Kent.
462 R. N.—Lieut.-Col. H. Watts, Haslington Hall, Crewe.

Class 526.—*Orpington Pullets, any colour.*

468 I.—Thomas C. Pinniger, The Walnuts, Westbury.
466 II.—Mrs. G. E. Clarke, The Model Poultry Farm, Oakham.
470 III.—Harold Corrie, Heath House Farm, Lowfield Heath, Surrey.
471 R. N.—W. J. Golding, Bowens, Penshurst, Kent.

Class 527.—*Australorp Cocks or Cockerels.*

474 I. & Special.—Mrs. Geoffrey Spencer, Reedley, Bexhill.
473 II. & R. N. for Special.—Capt. J. F. Mugliston, Formby, Lancashire.
472 III.—Lord Dewar, Homestall, East Grinstead.
486 IV.—J. W. Dickinson, The Stud House, Hampton Court.
484 V.—H. Harold Lloyd, Offley Poultry Farm, Sandbach.
487 R. N.—Thomas & Wicksteed, Barton Seagrave Poultry Farm, Kettering.
H. C.—482. C.—477.

Class 528.—*Australorp Hens or Pullets.*

491 I. & Special.—Capt. J. F. Mugliston, Formby, Lancashire.
490 II. & R. N. for Special.—Lord Dewar, Homestall, East Grinstead.
493 III. & 496 IV.—H. Harold Lloyd, Offley Poultry Farm, Sandbach.
488 R. N.—Australorps Farms, Ltd., Street Court, Kingsland.
H. C.—489. C.—492.

Class 529.—*British Rhode Island Red Single Comb Cocks.*

513 I. & Special & 501 IV.—T. C. Crawhall, Haveray Park, Kirk Hammerton, York.
514 II.—Thomas Hodgson & Son, Redsholme Farm, Cotherstone, Darlington.
512 III.—George Scott, Peerless Poultry Farm, Mirfield.
499 V.—W. R. Abbey, Croft Farm, Hessay, York.
508 R. N.—C. C. Southam, Leicester Road, Bedworth, Nuneaton.
H. C.—498, 504, 506, 517. C.—503.

Class 530.—*British Rhode Island Red Single Comb Hens.*

526 I.—T. C. Crawhall, Haveray Park, Kirk Hammerton, York.
527 II.—Thomas Hodgson & Son, Redsholme Farm, Cotherstone, Darlington.
521 III.—Walter Wright, Chetwynd Arms Hotel, Polesworth, Tamworth.
523 IV.—W. R. Abbey, Croft Farm, Hessay, York.
518 V.—Mrs. Geoffrey Spencer, Reedley, Bexhill.
525 R. N.—Charles Middlemas, East Mill Poultry Farm, Morpeth.
H. C.—529. C.—519.

Class 531.—*British Rhode Island Red Single Comb Cockerels.*

548 I. & R. N. for Special.—Thomas Hodgson & Son, Redsholme Farm, Cotherstone, Darlington.
530 II. & 543 V.—Mrs. Geoffrey Spencer, Reedley, Bexhill.
531 III.—Mrs. Hugh J. Lewis, Field House, Shardlow, Derby.
549 IV.—Cunliffe-Owen Poultry Farm, Ltd., Loughborough.
539 R. N.—H. Harold Lloyd, Offley Poultry Farm, Sandbach.
H. C.—537, 541, 547. C.—545.

Class 532.—*British Rhode Island Red Single Comb Pullets.*

558 I. & Special.—Lady Victoria Murray, Whiteley Hey Farms, Prestbury.
560 II. & R. N. for Special.—Mrs. Geoffrey Spencer, Reedley, Bexhill.
563 III.—C. H. Horn, Buckland House, Wellington, Somerset.
554 IV.—W. R. Abbey, Croft Farm, Hessay, York.
568 V.—Mrs. Hugh J. Lewis, Field House, Shardlow, Derby.
578 R. N.—Cunliffe-Owen Poultry Farm, Ltd., Loughborough.
H. C.—557, 564, 572. C.—567, 573, 577.

Class 533.—*British Rhode Island Red Rose Comb Cocks.*

582 I. & R. N. for Special.—Mrs. Geoffrey Spencer, Reedley, Bexhill.
588 II.—George Scott, Peerless Poultry Farm, Mirfield.
586 III.—R. E. Marsh, Swanwick, Alfreton.
590 IV.—Mrs. Hugh J. Lewis, Field House, Shardlow, Derby.
583 R. N.—Miss Annie Percifull, Beach Poultry Farm, Minehead.
H. C.—587. C.—589.

Class 534.—*British Rhode Island Red Rose Comb Hens.*

591 I.—John Spencer, Market Place, Ashbourne.
592 II.—R. E. Marsh, Swanwick, Alfreton.
596 III.—George Scott, Peerless Poultry Farm, Mirfield.
595 R. N.—Mrs. Christine Colbeck, Boyle Hall, Wakefield.
H. C.—597.

Class 535.—*British Rhode Island Red Rose Comb Cockerels.*

598 I.—R. E. Marsh, Swanwick, Alfreton.
603 II.—Mrs. Hugh J. Lewis, Field House, Shardlow, Derby.
600 III.—Georg Scott, Peerless Poultry Farm, Mirfield.
602 R. N.—Miss M. K. Napier, Wellington Road Poultry Farm, Taunton.
C.—599

Class 536.—*British Rhode Island Red Rose Comb Pullets.*

605 I. & Special.—C. H. Horn, Buckland House, Wellington, Somerset.
604 II.—T. A. Scott & Co., The Trenches, Middle Green, Slough.
610 III.—John Spencer, Market Place, Ashbourne.
608 IV.—R. E. Marsh, Swanwick, Alfreton.
611 R. N.—Mrs. Christine Colbeck, Boyle Hall, Wakefield.

Class 537.—*Barred Plymouth Rock Cocks.*

621 I. & Special.—John Taylor, Heath Farm, Tiptree.
622 II.—W. R. Williams, Carnforth.
614 III.—Dr. E. S. Jackson, Poultry Farm, Carnforth.
617 IV.—T. A. Dennison, Mitchelgate, Kirkby Lonsdale.
615 R. N.—James Bateman, Milnthorpe.
H. C.—623. C.—619.

Class 538.—*Barred Plymouth Rock Hens.*

630 I.—W. R. Williams, Carnforth.
624 II.—Irving Coe, Gaultney Farm, Desborough, Market Harborough.
628 III.—Jonathan Hopkins, Davenshaw House, Buglawton, Congleton.
625 R. N.—T. A. Dennison, Mitchelgate, Kirkby Lonsdale.
H. C.—626. C.—629.

Class 539.—*Barred Plymouth Rock Cockerels.*

635 I. & R. N. for Special, & 631 II.—Dr. E. S. Jackson, Carnforth.
632 III.—W. W. W. Butt, Eastfield Farm, North Thoresby.
636 R. N.—W. R. Williams, Carnforth.
H. C.—633. C.—634.

Class 540.—*Barred Plymouth Rock Pullets.*

639 I.—W. W. W. Butt, Eastfield Farm, North Thoresby.
647 II.—Dr. E. S. Jackson, Poultry Farm, Carnforth.
644 III.—John Fawcett, Eldron House, Westhouse, Ingleton, Yorks.
638 IV.—L. H. and J. Nutter, The Square, Burton, via Carnforth.
640 R. N.—C. H. Horn, Buckland House, Wellington, Somerset.
H. C.—643. C.—648.

Class 541.—*Buff Plymouth Rock Cocks or Cockerels.*

651 I. & Special.—Mrs. Drew, Buff Rock Poultry Farm, Basingstoke.
661 II.—D. O. Lyles, Bank House, Ashton Road, Lancaster.
654 III. & 662 V.—Dr. E. S. Jackson, Poultry Farm, Carnforth.
656 IV.—Thomas Minshull, 8 Willow Street, Congleton.
649 R. N.—W. R. Abbey, Croft Farm, Hessay, York.
H. C.—655. C.—652.

Class 542.—*Buff Plymouth Rock Hens or Pullets.*

676 I. & R. N. for Special.—Herbert Spensley, Oaks Farm, Menston, via Leeds.
665 II. & 675 IV.—Mrs. Drew, Buff Rock Poultry Farm, Basingstoke.
679 III.—William Rhead, 18 Westwood Road, Leek.
672 V.—James Bateman, Milnthorpe.
678 R. N.—John Taylor, Heath Farm, Tiptree.
H. C.—677. C.—669.

Class 543.—*Plymouth Rock Cocks or Cockerels, any other colour.*

683 I.—R. Anthony, Home Farm, Euxton, Chorley.
684 II. & 681 III.—Dr. E. S. Jackson, Poultry Farm, Carnforth.
680 R. N.—Major J. A. Morrison, D.S.O., Basildon Park, Reading.
H. C.—682.

Class 544.—*Plymouth Rock Hens or Pullets, any other colour.*

685 I.—Lord Dewar, Homestall, East Grinstead.
688 II.—Major J. A. Morrison, D.S.O., Basildon Park, Reading.
686 III. & 689 R. N.—Dr. E. S. Jackson, Poultry Farm, Carnforth.
H. C.—687.

Class 545.—*Old English Game Black Red Cocks or Cockerels.*

691 I.—Lord Dewar, Homestall, East Grinstead.
699 II.—F. G. Bigg & Son, Elm Cottage, Newton Abbot.
696 III.—A. Pegg, The Lodge, Ticknall, Derby.
697 IV.—Arthur Brown, The Old Hall, Heighington.
694 R. N.—Arthur Booth, 20 High Street, Congleton.
H. C.—695. C.—698.

Class 546.—*Old English Game Clay or Wheaten Hens or Pullets.*

701 I.—A. W. Noton, Upper End, Park Dale, via Stockport.
705 II.—W. H. Hambleton, Boyers Lodge Farm, Kirby Muxloe, Leicester.
702 III.—Miss Mary A. Reed, Low Cote Hill Farm, Carlisle.
706 IV.—A. Pegg, The Lodge, Ticknall, Derby.
704 R. N.—Arthur Booth, 20 High Street, Congleton.
H. C.—700.

Class 547.—*Old English Game Cocks or Cockerels, any other colour.*

712 I.—Major J. A. Morrison, D.S.O., Basildon Park, Reading.
716 II. & 710 IV.—J. Graves, Station House, Bullgill, Cumberland.
715 III.—W. H. Hambleton, Boyers Lodge Farm, Kirby Muxloe, Leicester.
718 V. & 709 R. N.—J. R. Crompton, Banstead, Surrey.
H. C.—711. C.—713.

Class 548.—*Old English Game Hens or Pullets, any other colour.*

724 I.—John Watson, Eden Mount, Kendal.
726 II.—Major J. A Morrison, D.S.O., Basildon Park, Reading.
722 III.—J. Graves, Station House, Bullgill, Cumberland.
727 R. N.—A. Pegg, The Lodge, Ticknall, Derby.
H. C.—725. C.—728.

Class 549.—*Indian Game Cocks or Cockerels.*

729 I. & 732 R. N.—Richard Belcher, 9 Barrons Street, West Bromwich.
735 II.—Cunliffe-Owen Poultry Farm, Ltd., Loughborough.
731 III.—H. J. White, Pool Hill, Bridestowe, Devon.
H. C.—730. C.—733.

Class 550.—*Indian Game Hens or Pullets.*

742 I.—Richard Belcher, 9 Barrons Street, West Bromwich.
736 II.—Abbot Bros., Thuxton, Norfolk.
741 III.—Cunliffe-Owen Poultry Farm, Ltd., Loughborough.
739 R. N.—Hugh Scott, 1 Orangefield Place, Greenock.
H. C.—738. C.—737.

Class 551.—*Minorca Cocks or Cockerels.*

743 I.—Lord Dewar, Homestall, East Grinstead.

Class 552.—*Minorca Hens or Pullets.*

745 I.—Lord Dewar, Homestall, East Grinstead.
747 II.—William J. Sewell, Culgarth, Carlisle.
746 III.—Whitaker & Toothill, Great Ouseburn, York.

Class 553.—*White Leghorn Cocks or Cockerels.*

748 I.—Lord Dewar, Homestall, East Grinstead.
751 II.—R. Anthony, Home Farm, Euxton, Chorley.
750 III.—Whitaker & Toothill, Great Ouseburn, York.
749 R. N.—Harry Haynes, Trinity House, Ashby-de-la-Zouch.

Class 554.—*White Leghorn Hens or Pullets.*

755 I.—R. Anthony, Home Farm, Euxton, Chorley.
752 II.—Lord Dewar, Homestall, East Grinstead.
754 III.—H. Jenkins, Kirby Muxloe, Leicester.
753 R. N.—Coote & Co., Main Street, Littleport, Cambs.

Class 555.—*Leghorn Cocks or Cockerels, any other colour.*

759 I. & 769 III.—Martin Nicholls, Central Police Office, Warrington.
758 II.—Lord Dewar, Homestall, East Grinstead.
767 IV. & 762 V.—R. Anthony, Home Farm, Euxton, Chorley.
768 R. N.—Will Forrett, Rose Cottage, Dalbeattie.
H. C.—761, 766, 770.

Class 556.—*Leghorn Hens or Pullets, any other colour.*

778 I. & 784 III.—Walter Hurst, Glossop, Derbyshire.
782 II. & 776 IV.—R. Anthony, Home Farm, Euxton, Chorley.
783 V.—Rhys Higgs, Gorslwyd Farm, Betws, Ammanford.
771 R. N.—Lord Dewar, Homestall, East Grinstead.
C.—779.

Class 557.—*Ancona Cocks or Cockerels.*

790 I.—R. Anthony, Home Farm, Euxton, Chorley.
789 II.—E. Newall, Gravel, Winsford, Cheshire.
787 III.—A. J. Goodfellow, Welford, Rugby.
788 R. N.—Mrs. Hoyle, Thatcham Grange, Newbury.

Class 558.—*Ancona Hens or Pullets.*

791 I.—Mrs. Hoyle, Thatcham Grange, Newbury.
794 II.—R. Anthony, Home Farm, Euxton, Chorley.
795 III.—James Bodell, Park End, Repton, Derby.
792 R. N.—B. Chapman, Worthington, Ashby-de-la-Zouch.

Class 559.—*Campine Cocks or Cockerels.*

799 I. & 804 II.—Lieut.-Col. W. G. Lucas, Beech Place, Stowmarket.
800 III.—Lt.-Comdr. H. G. Nalder, Langley Mere, Chilworth, Guildford.
801 IV.—Nalder & Smith, Asbestos, Bridge, Canterbury.
807 R. N.—Walter Belcher, 5 Barrons Street, West Bromwich.

Class 560.—*Campine Hens or Pullets.*

817 I.—R. Anthony, Home Farm, Euxton, Chorley.
816 II & 821 III.—Walter Belcher, 5 Barrons Street, West Bromwich.
820 IV.—John S. Appleton, 70 Arden Street, Earlsdon, Coventry.
811 V.—Lionel Turner, Hampden Park, Eastbourne.
812 R. N.—Cunliffe-Owen Poultry Farm, Ltd., Loughborough.

Class 561.—*Sicilian Buttercup Cocks or Cockerels.*

822 I.—T. A. Scott & Co., The Trenches, Middle Green, Slough.
823 II. & 828 R. N.—Major J. A. Morrison, D.S.O., Basildon Park, Reading.
824 III.—Mrs. Christine Colbeck, Boyle Hall, Wakefield.

Class 562.—*Sicilian Buttercup Hens or Pullets.*

833 I.—Mrs. Christine Colbeck, Boyle Hall, Wakefield.
831 II. & 837 IV.—T. A. Scott & Co., The Trenches, Middle Green, Slough.
839 III.—Frank E. Derham, The Old Hall, Hilton, Derby.
832 R. N.—Major J. A. Morrison, D.S.O., Basildon Park, Reading.

Class 563.—*Cocks or Cockerels, any other distinct variety, except Bantams.*

843 I.—Joseph Pickerill, Sound Council School, Nantwich. Langshan.
842 II.—Albert E. Wragg, Edensor, Bakewell. Redcap.
841 III.—G. Henwood, Lanlivery, Lostwithiel. La Flèche.
840 IV.—A. W. McKenny Hughes, Balsham Manor, Cambridge. Houdan.
848 R. N.—Mrs. J. M. Walker, Oak Lane Pedigree Poultry Farm, Newdigate. Barnevelder.
H. C.—849.

Class 564.—*Hens or Pullets, any other distinct variety, except Bantams.*

865 I.—Cunliffe-Owen Poultry Farm, Ltd. Loughborough. Aseel.
861 II.—W. H. Avery, Meriden House, Yardley, Birmingham. Hamburgh.
850 III.—Major J. A. Morrison, D.S.O., Basildon Park, Reading. Black Sumatra Game.
851 IV.—A. W. McKenny Hughes, Balsham Manor, Cambridge. Houdan.
853 V.—Harry Fox, Richmond Poultry Farm, Matlock. Redcap.
857 R. N.—Joseph Pickerill, Sound Council School, Nantwich. Langshan.
H. C.—852. C.—854.

Class 565.—*Utility Poultry, White Wyandotte Cocks or Cockerels.*

874 I.—Richard Rodwell, Walverden Poultry Farm, Nelson.
872 II.—The Rev. J. E. T. Hughes, Radford Vicarage, Leamington Spa.
866 III.—Lady Anderson, Harrold Priory, Bedfordshire.
879 IV.—Park House Poultry Farm, Burstow, Surrey.
880 V.—Wilfrid W. Woodward, Ffrome Valley Poultry Farm, Bishops Frome, Worcester.
873 R. N.—F. Boothroyd, Shustoke, Coleshill, Birmingham.

Class 566.—*Utility Poultry, White Wyandotte Hens or Pullets.*

883 I.—C. N. Goode, Bletsoe, Bedford.
881 II.—Lady Victoria Murray, Whiteley Hey Farms, Prestbury.
891 III.—Harry Whiteoak, The Grange Farm, Keldwick, Keighley.
890 IV.—T. B. Dale, Elmton Vicarage, Clowne, Chesterfield.
893 V.—R. Dawson, Emmett Carr Farm, Renishaw, Chesterfield.
895 R. N.—Wilfrid W. Woodward, Ffrome Valley Poultry Farm, Bishops Frome, Worcester.
H. C.—886. C.—885.

Class 567.—*Utility Poultry, White Leghorn Cocks or Cockerels.*

903 I.—Miss A. M. Brown, Victoria House, Leighton Buzzard.
901 II.—Harry Whiteoak, The Grange Farm, Keldwick, Keighley.
896 III.—Lady Victoria Murray, Whiteley Hey Farms, Prestbury.
907 IV.—Harold Corrie, Heath House Farm, Lowfield Heath, Surrey.
904 V.—Park House Poultry Farm, Burstow, Surrey.
H. C.—906.

Class 568.—*Utility Poultry, White Leghorn Hens or Pullets.*

921 I.—Henry Rainbow, 270 London Road, Kettering.
922 II., 908 IV. & 928 V.—Basil Stranack, Asteria Poultry Farm, West Littleton, Chippenham.
916 III.—Harold Corrie, Heath House Farm, Lowfield Heath, Surrey.
909 R. N.—R. Fletcher Hearnshaw, Fox Hill, Burton Joyce, Nottingham.
H. C.—930. C.—924.

Class 569.—*Utility Poultry, British Rhode Island Red Cocks or Cockerels.*

942 I.—Thomas Atkinson, Burton-in-Lonsdale, via Carnforth.
945 II.—Major E. T. Kingscote, Sherington Utility Poultry Farm, Newport Pagnell.
935 III.—W. R. Abbey, Croft Farm, Hessay, York.
948 IV.—Park House Poultry Farm, Burstow, Surrey.
949 V.—Miss Frances Champion, Heather Hall, Leicester.
943 R. N.—Wilfrid W. Woodward, Ffrome Valley Poultry Farm, Bishops Frome, Worcester.
H. C.—937. C.—941.

Class 570.—*Utility Poultry, British Rhode Island Red Hens or Pullets.*

967 I.—Thomas Hodgson & Son, Redsholme Farm, Cotherstone, Darlington.
958 II.—Major E. T. Kingscote, Sherington Utility Poultry Farm, Newport Pagnell.
952 III.—Ralph Forster, Lothbury Farm, Cotherstone, Darlington.
957 IV.—W. R. Abbey, Croft Farm, Hessay, York.
965 V.—Miss Frances Champion, Heather Hall, Leicester.
964 R. N.—William O. Furber, Dove Cottage, Thorpe, Ashbourne.
H. C.—954. C.—962.

Class 571.—*Utility Poultry, Sussex Cocks or Cockerels, any colour.*

974 I.—Park House Poultry Farm, Burstow, Surrey.
969 II.—Lady Anderson, Harrold Priory, Bedfordshire.
980 III.—Major E. T. Kingscote, Sherington Utility Poultry Farm, Newport Pagnell.
979 IV.—Mrs. M. A. Grant, Westlands, Horley.
973 V.—Capt. H. de B. C. Garfit, Nightingale Place, Polegate.
975 R. N.—Nalder & Smith, Asbestos, Bridge, Canterbury.
H. C.—978. C.—977.

Class 572.—*Utility Poultry, Sussex Hens or Pullets, any colour.*

989 I.—Nalder & Smith, Asbestos, Bridge, Canterbury.
998 II & 991 III.—Mrs. M. A. Grant, Westlands, Horley.
993 IV.—Blakesley & Blyth, West Moors, Dorset.
984 V.—C. N. Goode, Bletsoe, Bedford.
982 R. N.—The Duke of Northumberland, Park Farm, Alnwick.
H. C.—983. C.—990.

Class 573.—*Utility Poultry, Cocks or Cockerels, any other variety.*

1002 I.—Mrs. Drew, Buff Rock Poultry Farm, Basingstoke. Buff Plymouth Rock.
1003 II.—H. Harold Lloyd, Offley Poultry Farm, Sandbach. Australorp.
1005 III.—T. A. Scott & Co., The Trenches, Middle Green, Slough. Sicilian Buttercup.
1007 IV.—David C. Gauldie, 45 Dishland Street, Arbroath. Black Leghorn.
1009 V.—Harold Corrie, Heath House Farm, Lowfield Heath, Surrey. Black Leghorn.
999 R. N.—Mrs. H. E. Jerome, Pittern Hill House, Kineton, Warwick. Old English Pheasant Fowl.
H. C.—1006. C.—1004.

Class 574.—*Utility Poultry, Hens or Pullets, any other variety.*

1039 I.—Mrs. Drew, Buff Rock Poultry Farm, Basingstoke. Buff Plymouth Rock.
1034 II.—F. H. Carr, Kexby Bridge, York. Barnevelder.
1035 III.—H. Harold Lloyd, Offley Poultry Farm, Sandbach. Australorp.
1021 IV.—A. W. McKenny Hughes, Balsham Manor, Cambridge. Gâtinaises.
1038 V.—Harold Corrie, Heath House Farm, Lowfield Heath, Surrey. Black Leghorn.
1013 R. N.—Mrs. H. E. Jerome, Pittern Hill House, Kineton, Warwick. Old English Pheasant Fowl.
H. C.—1026. C.—1037.

Class 575.—*Aylesbury Drakes or Ducks.*

1043 I.—James Huntly & Son, Hirsel Poultry Farm, Coldstream.
1044 II.—Abbot Bros., Thuxton, Norfolk.

Class 576.—*Rouen Drakes or Ducks.*

1048 I.—James Huntly & Son, Hirsel Poultry Farm, Coldstream.
1047 II. & 1049 III.—Abbot Bros., Thuxton, Norfolk.
1050 R. N.—R. Anthony, Home Farm, Euxton, Chorley.
H. C.—1046.

Class 577.—*Fawn Indian Runner Drakes or Ducks, bred prior to* 1924.

1069 I.—Charles H. C. Partridge, Little Lambswick, Tenbury Wells.
1065 II. & Special.—J. E. Roberts, Rectory House, Hope Bagot, Ludlow.
1051 III.—Miss Dorothy Pease, Middleton Lodge, Middleton Tyas.
1052 IV.—Dr. J. A. Coutts, 21 Cambridge Road, Southport.
1059 V. & 1063 R. N.—E. H. Lang, Dalbeattie, N.B.
H. C.—1055, 1062, 1067.

Class 578.—*Fawn Indian Runner Drakes or Ducks, bred in* 1924.

1070 I. & 1075 R. N.—C. Haddon Jones, Longfield, Tenbury.
1071 II. & 1076 III.—F. S. Whiteman, Elmcroft, Winterbrook, Wallingford.
H. C.—1073.

Class 579.—*Indian Runner Drakes or Ducks, any other colour, bred prior to* 1924.

1082 I. & Special.—Dr. J. A. Coutts, 21 Cambridge Road, Southport.
1090 II.—Matthew Smith, Netherholm, Kirkmahoe, Dumfries.
1088 III.—D. J. Jones, Tycoch Farm, Ammanford.
1091 IV.—R. D. Ives, The Grange, Erpingham, Norwich.
1084 V.—Charles H. C. Partridge, Little Lambswick, Tenbury Wells.
1087 R. N.—Englethwaite Poultry Farm, Armathwaite, Carlisle.
H. C.—1085.

Class 580.—*Indian Runner Drakes or Ducks, any other colour, bred in* 1924.

1093 I. & 1097 II.—Reginald Appleyard, Brewsters, Ixworth.
1096 III. & 1092 R. N.—C. Haddon Jones, Longfield, Tenbury.

Class 581.—*Buff Orpington Drakes or Ducks, bred prior to* 1924.

1102 I.—Col. R. S. Williamson, The Grange, Hednesford, Staffs.
1100 II.—James Huntly & Son, Hirsel Poultry Farm, Coldstream.
1105 III.—Miss G. G. Firmstone, Meadowcroft, Battle, Sussex.
1103 R. N.—W. H. Mitchell, Elmdene, Kenilworth.
H. C.—1098.

Class 582.—*Buff Orpington Drakes or Ducks, bred in* 1924.

1109 I.—James Huntly & Son, Hirsel Poultry Farm, Coldstream.
1110 II.—Mrs. J. M. Walker, Oaklane Pedigree Poultry Farm, Newdigate.

Class 583.—*Drakes, any other variety.*

1114 I.—Abbot Bros., Thuxton, Norfolk. Muscovy.
1120 II.—William Richardson, 13 Bootham Crescent, York. Cayuga.
1112 III.—Col. R. S. Williamson, The Grange, Hednesford, Staffs. Cayuga.
1113 IV.—Ouse Manor Farms, Sharnbrook. Magpie.
1119 R. N.—Dr. A. Barry Sykes, Ashhurst, Formby, Lancs. Black East Indian.
H. C.—1116. C.—1117.

Class 584.—*Ducks, any other variety.*

1121 I.—Col. R. S. Williamson, The Grange, Hednesford, Staffs. Cayuga.
1124 II.—Abbot Bros., Thuxton, Norfolk. Muscovy.
1129 III.—Dr. A. Barry Sykes, Ashhurst, Formby, Lancs. Black East Indian.
1127 IV.—Ouse Manor Farm, Sharnbrook. Magpie.
1128 R. N.—William Richardson, 13 Bootham Crescent, York. Cayuga.
H. C.—1125. C.—1123.

Class 585.—*Embden Ganders or Geese.*

1132 I.—The Duke of Portland, K.G., Welbeck Abbey, Worksop.
1134 II.—Abbot Bros., Thuxton, Norfolk.
1133 III.—Lady Harlech, Brogyntyn, Oswestry.
1137 R. N.—Reginald Appleyard, Brewsters, Ixworth.

Class 586.—*Toulouse Ganders or Geese.*

1138 I. & 1142 R. N.—Harold Corrie, Heath House Farm, Lowfield Heath, Surrey.
1140 II.—Abbot Bros., Thuxton, Norfolk.
1139 III.—Mrs. Harry Kent, Stanbridge Farm, Hooe, Battle, Sussex.
H. C.—1141.

Class 587.—*Turkey Cocks.*

1144 I.—MRS. COLIN LAING, Glendale, Haltwhistle.
1145 II.—HORACE WOOLLATT, Valley Farm, Codicote, Welwyn, Herts.
1146 III.—ABBOT BROS., Thuxton, Norfolk.
1149 IV.—HERBERT BENNETT, Turkey Farm, Braiseworth, Eye, Suffolk.
1148 R. N.—FRANK FARE, Fir Tree Farm, Crossmoor, Kirkham.
H. C.—1147. C.—1150.

Class 588.—*Turkey Hens.*

1154 I.—ABBOT BROS., Thuxton, Norfolk.
1157 II.—H. J. CATTELL, Church Farm, Bickenshill, Hampton-in-Arden.
1155 III.—FRANK FARE, Fir Tree Farm, Crossmoor, Kirkham.
1156 R. N.—HERBERT BENNETT, Turkey Farm, Braiseworth, Eye, Suffolk.

HORTICULTURAL EXHIBITION.

Class 1.—*Groups of Miscellaneous Plants.*

1 I. (£45.)—JAMES CYPHER & SONS, Cheltenham.
2 II. (£40.)—W. A. HOLMES, West End Nurseries, Chesterfield.

Class 2.—*Collections of Orchids.*

3 I. (£12.)—JAMES CYPHER & SONS, Cheltenham.

Class 3.—*Collections of Delphiniums.*

5 I. (£6.)—BLACKMORE & LANGDON, Bath.
6 II. (£4.)—W. ARTINDALE & SONS, Nether Green Nurseries, Sheffield.

Class 4.—*Groups of Tuberous Begonias in Pots.*

7 I. (£30.)—BLACKMORE & LANGDON, Bath.

Class 5.—*Collections of Hardy Perennial Plants and Cut Blooms.*

9 I. (£30.)—W. ARTINDALE & SONS, Nether Green Nurseries, Sheffield.
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Royal Agricultural Society of England.

STATEMENT
OF
PRIVILEGES OF MEMBERSHIP.

CHEMICAL.—Information as to Analyses and the Fees payable by Members; Instructions for taking and sending Samples (pages ii and iii).
BOTANICAL.—Information on purchase and value of Seeds and other matters; Suggestions, &c. (pages iv and v).
ZOOLOGICAL.—Information on Pests of Farm Crops, Fruit and Forest Trees, and Domesticated Animals, &c. (page vi).
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VETERINARY.—Privileges and Information (page vii).

GENERAL PRIVILEGES.

FREE ADMISSION to Show, the Unreserved Portion of the Grand Stand, &c. (if room), and use of Members' Pavilion in Show Yard.
SOCIETY'S JOURNAL and other Publications (page viii).
READING ROOM, 16 Bedford Square.
(Open to Members from 10 a.m. to 4 p.m.; Saturdays, 10 a.m. to 1 p.m.)
REDUCED RATES for entry of Live Stock, Implements, Produce, &c., at Show.

TERMS OF MEMBERSHIP.

ANNUAL SUBSCRIPTION—	Governor	*Minimum*	£5.
	Member	*Minimum*	£1.
LIFE COMPOSITIONS—	Governor		£50.
	Member		£15.

T. B. TURNER,
Secretary.

16 Bedford Square, W.C. 1.
January, 1925.

Telegraphic Address: "Practice, Phone, London."
Telephone Number: "Museum 675."

MEMBERS' PRIVILEGES OF CHEMICAL ANALYSIS.

(Applicable only to the case of persons who are not commercially engaged in the manufacture or sale of any substance sent for Analysis.)

THE COUNCIL HAVE FIXED THE FOLLOWING

RATES OF CHARGES FOR CHEMICAL ANALYSIS

TO MEMBERS OF THE SOCIETY.

These privileges are applicable only when the Analyses are for *bonâ fide* agricultural purposes, and are required by Members of the Society for their own use and guidance in respect of farms or land in their own occupation and within the United Kingdom.

The Analyses are given on the understanding that they are required for the individual and sole benefit of the Member applying for them, and must not be used for other persons, or for commercial purposes.

The Analyses and reports may not be communicated to either vendor or manufacturer, except in cases of dispute.

Land or estate agents, bailiffs, and others, when forwarding samples, are required to state the names of those Members on whose behalf they apply.

	£	*s.*	*d.*
1.—An opinion on the purity of any Fertiliser or Feeding Stuff (so far as this can be given without detailed analysis)		1	0
2.—Determination of any *one* ordinary constituent in a Fertiliser or Feeding Stuff		2	6
3.—Determination of Potash		5	0
4.—Commercial Analysis of any ordinary Fertiliser or Feeding Stuff		5	0
5.—Full Analysis of any compound Fertiliser or Feeding Stuff		10	0
6.—Analysis of any other material in ordinary use for agricultural purposes		10	0
7.—Analysis of Milk, Cream, Butter, or other Dairy produce from Members' own farms		2	6
(N.B.—Samples in any way connected with the Sale of Food and Drugs Acts are not undertaken for analysis.)			
8.—Analysis of Water	1	10	0
9.—Analysis of Soil—determination of Lime only		10	0
10.—Analysis of Soil—partial	1	0	0
11.—Analysis of Soil—complete	3	0	0
12.—Consultation by letter or personal appointment		5	0

OPINION OF VALUE.

With the analysis will be given, as far as possible, an opinion as to whether an article analysed is worth the price asked for it, or not, provided the cost of the same, together with guarantee (if any) and other particulars relating to the purchase, be given at the same time.

ALL SAMPLES AND COMMUNICATIONS, TOGETHER WITH FEES FOR ANALYSIS, TO BE ADDRESSED TO—

Dr. VOELCKER, Analytical Laboratory,
1 Tudor Street, London, E.C.4.

Instructions for Selecting and Sending Samples for Analysis.

GENERAL RULES.—(1) A sample taken for analysis should be fairly *representative of the bulk* from which it has been drawn.—(2) The sample should reach the Analyst *in the same condition* that it was in at the time when drawn.

When **Fertilisers** are delivered in bags, select four or five of these from the bulk, and either turn them out on a floor and rapidly mix their contents, or else drive a shovel into each bag and draw out from as near the centre as possible a couple of shovelfuls of the manure, and mix these quickly on a floor.

Halve the heap obtained in either of these ways, take one-half (rejecting the other) and mix again rapidly, flattening down with the shovel any lumps that appear. Repeat this operation until at last only some three or four pounds are left.

From this fill three tins, holding from ½ lb. to 1 lb. each, mark, fasten up and seal each of these. Send one for analysis, and retain the others for reference.

Or,—the manure may be put into glass bottles provided with well-fitting corks; the bottles should be labelled and the corks sealed down. The sample sent for analysis can be packed in a wooden box and sent by post or rail.

When manures are delivered in bulk, portions should be successively drawn from *different parts* of the bulk, the heap being turned over now and again. The portions drawn should be thoroughly mixed, subdivided, and, finally, samples should be taken as before, except that when the manure is coarse and bulky it is advisable to send larger samples than when it is in a finely divided condition.

Linseed, Cotton, and other Feeding Cakes.—If a single cake be taken, three strips should be broken off right across the cake, and from the middle portion of it, one piece to be sent for analysis, and the other two retained for reference. Each of the three pieces should be marked, wrapped in paper, fastened up, and sealed. The piece forwarded for analysis can be sent by post or rail.

A more satisfactory plan is to select four to six cakes from different parts of the delivery, then break off a piece about four inches wide from the middle of each cake, and pass these pieces through a cake-breaker. The broken cake should then be well mixed and three samples of about 1 lb. each should be taken and kept in tins or bags, duly marked, fastened, and sealed as before. One of these lots should be sent for analysis, the remaining two being kept for reference. It is advisable also with the broken pieces to send a small strip from an unbroken cake.

Feeding Meals, Grain, &c.—Handfuls should be drawn from the centre of half a dozen different bags of the delivery; these lots should then be well mixed, and three ½-lb. tins or bags filled from the heap, each being marked, fastened up, and sealed. One sample is to be forwarded for analysis and the others retained for reference.

Soils.—Have a wooden box made 6 inches in length and width, and from 9 to 12 inches deep, according to the depth of soil and subsoil of the field. Mark out in the field a space of about 12 inches square; dig round in a slanting direction a trench, so as to leave undisturbed a block of soil and its subsoil 9 to 12 inches deep; trim this block to make it to fit into the wooden box, invert the open box over it, press down firmly, then pass a spade under the box and lift it up, gently turn over the box, nail on the lid, and send by rail. The soil will then be received in the position in which it is found in the field.

In the case of very light, sandy, and porous soils, the wooden box may be at once inverted over the soil, forced down by pressure, and then dug out.

Waters.—Samples of water are best sent in glass-stoppered Winchester bottles, holding half a gallon. One such bottle is sufficient for a single sample. Care should be taken to have these scrupulously clean. In taking a sample of water for analysis it is advisable to reject the first portion drawn or pumped, so as to obtain a sample of the water when in ordinary flow. The bottle should be rinsed out with the water that is to be analysed, and it should be filled nearly to the top. The stopper should be secured with string, or be tied over with linen or soft leather. The sample can then be sent carefully packed either in a wooden box with sawdust, &c., or in a hamper with straw.

Milk.—A pint bottle should be sent in a wooden box.

GENERAL INSTRUCTIONS. Time for Taking Samples.—All samples, both of fertilisers and feeding stuffs, should be taken as soon after their delivery as possible, and should reach the Analyst within *ten days* after delivery of the article. In every case it is advisable that the Analyst's certificate be received before a fertiliser is sown or a feeding stuff is given to stock.

Procedure in the Event of the Vendor wishing Fresh Samples to be Drawn.—Should a purchaser find that the Analyst's certificate shows a fertiliser or feeding stuff not to come up to the guarantee given him, he may inform the vendor of the result and complain accordingly. He should then send to the vendor *one* of the two samples which he has kept for reference. If, however, the vendor should demand that a fresh sample be drawn, the purchaser must allow this, and also give the vendor an opportunity of being present, either in person or through a representative whom he may appoint. In that case three samples should be taken in the presence of both parties with the same precautions as before described, *each* of which should be duly packed up, labelled and *sealed* by both parties. One of these is to be given to the vendor, one is to be sent to the Analyst, and the third is to be kept by the purchaser for reference or future analysis if necessary.

MEMBERS' BOTANICAL PRIVILEGES.

THE COUNCIL HAVE FIXED THE FOLLOWING

RATES OF CHARGES FOR THE EXAMINATION OF PLANTS AND SEEDS

BY THE SOCIETY'S BOTANIST.

Analyses are given on the understanding that they are required for the individual and sole benefit of the Member applying for them, and must not be used for other persons or for commercial purposes. The Analyses and Reports may not be communicated to the vendor except in cases of dispute.

The charge for examination must be paid at the time of application, and the carriage of all parcels must be prepaid. When, however, *bonâ fide* inquiries require no special investigation the fees will be returned with the reply.

1.—Report on the purity and germinating capacity of samples of agricultural seeds, with a statement as to the nature and amount of the impurities or adulterants present	**1s.**
2.—Report on the constitution of mixtures of grass seeds and an opinion as to their suitability for temporary leys, permanent pastures, &c.	**1s.**
3.—Identification of weeds and poisonous plants with suggestions for their eradication	**1s.**
4.—Report on the fungoid diseases affecting farm crops, with an account of the methods suitable for their treatment, where known	**1s.**
5.—Report on the natural herbage of a district as a guide to the formation of permanent pastures	**1s.**
6.—Report on the suitability or otherwise of the different varieties of the chief farm crops for local conditions (where the information is available), stating their average cropping capacity as compared with other varieties, their quality, power of resistance to various diseases, and general purity to type	**1s.**
7.—Reports on any other matters of a botanical nature of interest to agriculturists	**1s.**

PURCHASE OF SEEDS.

The purchaser should obtain from the vendor, by invoice or other writing, the proper designation of the seeds he buys, with a guarantee of the percentage of purity and germination, and of its freedom from ergot, and, in the case of clover, from the seeds of dodder.

MEMBERS' BOTANICAL PRIVILEGES (*continued*).

THE SAMPLING OF SEEDS.

The utmost care should be taken to secure a fair and honest sample. This should be drawn from the bulk delivered to the purchaser, and not from the sample sent by the vendor.

When legal evidence is required, the sample should be taken from the bulk, and placed in a sealed bag in the presence of a witness. Care should be taken that the sample and bulk be not tampered with after delivery, or mixed or brought in contact with any other sample or bulk.

At least one ounce of grass and other small seeds should be sent, and two ounces of cereals and the larger seeds. When the bulk is obviously impure, the sample should be at least double the amount specified. Grass seeds should be sent at least four weeks, and seeds of clover and cereals two weeks before they are to be used.

The exact name under which the sample has been sold and analysed should accompany it.

REPORTING THE RESULTS.

The Report will be made on a schedule in which the nature and amount of impurities will be stated, and the number of days each sample has been under test, with the percentage of the seeds which have germinated.

"Hard" clover seeds, though not germinating within the time stated, will be considered good seeds, and their percentage separately stated.

The impurities in the sample, including the chaff of the species tested, will be specified in the schedule, and only the percentage of the pure seed of that species will be reported upon; but the REAL VALUE of the sample will be stated. The Real Value is the combined percentages of purity and germination, and is obtained by multiplying these percentages and dividing by 100; thus in a sample of Meadow Fescue having 88 per cent. purity and 95 per cent. germination, 88 multiplied by 95 gives 8,360, and this divided by 100 gives 83·6, the Real Value.

SELECTING SPECIMENS OF PLANTS.

When a specimen is sent for determination, the whole plant should be taken up and the earth shaken from the roots. If possible, the plants must be in flower or fruit. They should be packed in a light box, or in a firm paper parcel.

Specimens of diseased plants or of parasites should be forwarded as fresh as possible. They should be placed in a bottle, or packed in tinfoil or oil-silk.

All specimens should be accompanied with a letter specifying the nature of the information required, and stating any local circumstances (soil, situation, etc.) which, in the opinion of the sender, would be likely to throw light on the inquiry.

PARCELS OR LETTERS CONTAINING SEEDS OR PLANTS FOR EXAMINATION MUST BE ADDRESSED (CARRIAGE OR POSTAGE PREPAID) TO—

PROFESSOR SIR R. H. BIFFEN, F.R.S.,
School of Agriculture, Cambridge.

MEMBERS' ZOOLOGICAL PRIVILEGES.

The Council have fixed the charge of 1s. for information to be supplied, by the Society's Zoologist, respecting any injurious (animal, quadruped, bird, insect, worm, &c.) pests.

(1) FARM CROPS.

All the ordinary farm crops are subject to numerous pests, some attacking the roots, some the leaves, others the stem or the blossom. The first necessity is the accurate identification of the pest in any case, for a knowledge of its life-history often suggests a method of dealing with it.

(2) FRUIT TREES.

There are a great number of orchard and bush-fruit pests. Some (codlin moth, pear-midge, &c.) attack the fruit; others (red-spider, aphis, caterpillars, &c.) the leaves; others (woolly aphis, boring beetles, &c.) the stem. Information will be given as to the identity of any pest and the best way of combating it.

(3) FOREST TREES.

Advice will be given with regard to the treatment of forest-tree pests, in plantations, nursery gardens, or ornamental grounds. Such pests may attack the trunks (beech-scale, boring insects, &c.), the leaves (caterpillars, aphis, &c.), or the roots (cockchafer grubs, &c., in young plantations).

(4) DOMESTICATED ANIMALS.

Animal parasites, whether external or internal, may be sent for identification and advice. They include worms, fly-maggots, ticks, lice, &c., and many well-known diseases (warbles, gapes, &c.) are due to them.

Diseases of animals due to other causes should be referred to the Veterinary Department.

N.B.—It is very important that specimens should reach the Zoologist fresh and in good condition. It is often impossible to determine the cause of injury in the case of crushed and shrivelled material. Tin boxes should be used, and some damp blotting-paper inserted to prevent undue drying. In the case of root-pests, the root should be sent with its surrounding soil.

PARCELS OR LETTERS CONTAINING SPECIMENS (CARRIAGE OR POSTAGE PAID) MUST BE ADDRESSED TO—

Mr. CECIL WARBURTON, M.A.,
School of Agriculture, Cambridge.

MILK AND DAIRY PRIVILEGES.

The Society makes an annual grant to the Research Institute in Dairying, University College, Reading, that its members may obtain advice on questions concerning the production and distribution of milk and the preparation of dairy products. The investigation of the causes of taints or other faults occurring in milk, butter, cheese or other milk products are undertaken. No fee is charged unless exceptional circumstances arise. Inquiries should be addressed to **The Director, Research Institute in Dairying, University College, Reading.**

MEMBERS' VETERINARY PRIVILEGES.

In order to enable Members to obtain the highest possible Veterinary advice when the necessity arises, the Society has entered into an agreement with the Royal Veterinary College, under which diseased animals may be admitted to the College Infirmary for treatment, and the Professors of the College may be consulted or called upon to investigate outbreaks of disease at greatly reduced fees.

I.—ADMISSION OF SICK OR DISEASED ANIMALS TO THE ROYAL VETERINARY COLLEGE.

Members of the Society have all the privileges of subscribers to the Royal Veterinary College, Camden Town, N.W.1, so far as the admission for treatment of Cattle, Sheep, and Swine is concerned, without being called upon to pay the annual subscription to the College of two guineas. The charges made by the College for keep and treatment are as follows:—Cattle, 10*s.* 6*d.*, and Sheep and Pigs, 3*s.* 6*d.* per week for each animal.

The full privileges of subscribers, including the examination of horses, and the admission of horses and dogs into the College Infirmary for surgical or medical treatment, on payment of the cost of keep, will be accorded to Members of the Society on payment of a subscription to the College of one guinea instead of two guineas per annum.

II.—FEES FOR CONSULTATIONS, ANALYSES, AND EXAMINATIONS AT THE ROYAL VETERINARY COLLEGE.

The following fees are payable by Members of the Society for services performed at the Royal Veterinary College on their behalf in cases where a visit to the locality is not involved:—

	£	*s.*	*d.*
Personal consultation with a Veterinary Professor		10	6
Consultation by letter		10	6
Post-mortem examination of an animal and report thereon	1	1	0
Chemical Examination of viscera for any specified metallic poison		10	6
Chemical Examination of viscera for metallic poisons	1	0	0
Chemical Examination of viscera for vegetable poisons	1	0	0
Chemical Examination of viscera complete, for metals and alkaloids	2	0	0

(The above fees do not apply to cases which involve a visit to the locality.)

III.—INVESTIGATION OF OUTBREAKS OF DISEASE AMONG FARM STOCK.

In the event of any obscure outbreak of disease among Cattle, Sheep, or Swine occurring on the farm of any Member of the Society, application should at once be made to the Principal of the Royal Veterinary College, Camden Town, London, N.W.1.

The Principal will then instruct an officer of the College to inquire into the outbreak and report to him. He will also fix the amount of remuneration to be paid to the Inspector, whose professional fee will in no case exceed two guineas per day, exclusive of the actual cost of travelling and maintenance.

When it appears, on the report of the Inspector selected, that the outbreak was of an important character or of general interest, the cost of the investigation will be defrayed by the Royal Veterinary College.

PUBLICATIONS OF THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

JOURNAL OF THE SOCIETY.

Now published as an Annual Volume of about 650 pages, in paper covers. Free to Members; Price to Non-Members, Fifteen Shillings.

TEXT-BOOK ON AGRICULTURE.

ELEMENTS OF AGRICULTURE: a Text-book prepared under the authority of the Royal Agricultural Society of England by the late W. Fream, LL.D. Tenth (Revised and Enlarged) Edition (79th Thousand), edited by J. R. Ainsworth-Davis, M.A. 700 pp. with 383 Illustrations. 1918. Price 7*s*. 6*d*. nett, bound in cloth.

FARM ACCOUNT BOOKS.

No. 1, **A DIARY**, combining Cash Account with daily record of Farm Transactions. Price 7*s*. 6*d*.

No. 2, **A FARM ACCOUNT BOOK**, 2nd Edition, showing payments and receipts, and supplying a form of Annual Balance Sheet. Price 8*s*. 6*d*.

Published for the Society and sold by Messrs. Forster, Groom & Co., Ltd., 15 Charing Cross, London, S.W. 1.

No. 3, **FARM CASH BOOK**, receipts and payments, to be used with a Ledger. Price 10*s*. 6*d*.

No. 4, **FARM LEDGER**, giving specimen entries and particulars of profit and loss account and balance sheet. Price 8*s*. 6*d*.

Nos. 3 and 4 are to be obtained at the Society's House, 16 *Bedford Square, London, W.C.* 1.

PAMPHLETS.

Veterinary Pamphlets by Professor Sir George Brown, C.B.:

DENTITION AS INDICATIVE OF THE AGE OF FARM ANIMALS. Seventh Edition (1920). 64 pp. With 60 Illustrations. Price 2*s*.

ANIMALS OF THE FARM IN HEALTH AND DISEASE. 72 pp. With 52 Illustrations. Fourth Edition (1909). Price 1*s*.

THE STRUCTURE OF THE HORSE'S FOOT AND THE PRINCIPLES OF SHOEING. 26 pp. Fifth and Enlarged Edition, revised by J. Macqueen, F.R.C.V.S. (1922). With 12 Illustrations. Price 1*s*.

CONTAGIOUS FOOT ROT OF SHEEP. Second and Enlarged Edition (1905). 24 pp. With 8 Illustrations. Price 1*s*.

Other Veterinary Pamphlets:

THE MARE AND FOAL. By Professor J. Wortley Axe, M.R.C.V.S. 57 pp. With 20 Illustrations. Third Edition (1925). Price 1*s*.

THE LAMBING PEN. By Harold Leeney. 4th Ed. (1922). 40 pp. With 9 Illustrations. Price 1*s*.

TUBERCULOSIS AS REGARDS HEREDITY IN CAUSATION AND ELIMINATION FROM INFECTED HERDS. By Professor Sir John McFadyean, M.B., B.Sc., C.M. (1911). 19 pp. Price 1*s*.

CALF REARING: An Experiment conducted at the Woburn Experimental Farm, 1912–14. By J. Augustus Voelcker, M.A., B.Sc., Ph.D. (1915). 12 pp. Price 6*d*., 3*d*. to Members.

Dairy Pamphlets:

(Issued under the authority of the Dairy Committee of the Society.)

THE PRACTICE OF (a) CHEDDAR, (b) CHESHIRE, & (c) STILTON CHEESE-MAKING. Price 2*d*. each.

SIMPLE RULES FOR BUTTER-MAKING. (Sheet.) Price 2*d*. each, or 10*s*. per 100. Mounted on card and varnished, to hang up in the Dairy, 6*d*. each.

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MILK ADULTERATION. Price 2*d*.; 10*s*. per 100.

Other Pamphlets:

COMPENSATION FOR THE UNEXHAUSTED MANURIAL VALUES OF FEEDING STUFFS AND FERTILISERS. By J. Augustus Voelcker, M.A., B.Sc., Ph.D., and A. D. Hall, M.A., F.R.S. (1914). 16 pp. Price 1*s*.

PRACTICAL FRUIT FARMING. By R. G. Hatton, M.A., and Walter R. Elgar, F.S.I. 87 pp. With 7 Illustrations (1922). Price 2*s*.

PRACTICAL HINTS ON VEGETABLE FARMING. By James Udale (1904). With 15 Illustrations. 41 pp. Price 1*s*.

HOP CULTIVATION. By Charles Whitehead, F.L.S., F.G.S. With 13 Illustrations (1893). 46 pp. Price 1*s*.

THE WOBURN EXPERIMENTAL STATION OF THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND. By J. Augustus Voelcker, M.A., B.Sc., Ph.D. Annual Reports on Field, Feeding, and Pot-culture Experiments (1899–1921). Price 1*s*. each.

REPORT ON THE WOBURN POT-CULTURE STATION. By J. Augustus Voelcker, M.A., B.Sc., Ph.D. With 17 Illustrations (1900). 52 pp. Price 2*s*. 6*d*.

THE MAKING OF THE LAND IN ENGLAND. By Albert Pell (1899). 27 pp. Price 6*d*.

THE MANAGEMENT AND PLANTING OF BRITISH WOODLANDS. By Professor Charles E. Curtis, F.S.I. (1904). With 6 Illustrations. 36 pp. Price 1*s*.

THE CONVERSION OF HOME-GROWN TIMBER. By Robert Anderson, F.S.I. (1904). With 4 Illustrations. 28 pp. Price 1*s*.

ORCHARD AND BUSH-FRUIT PESTS AND HOW TO COMBAT THEM. By Cecil Warburton, M.A., F.Z.S. With 12 Illustrations. Second Edition (1910). 20 pp. Price 6*d*.

SOME PROBLEMS OF RE-AFFORESTATION. By W. Somerville, M.A., D.Sc. (1919). 13 pp. Price 6*d*.

COTTAGE SANITATION IN RURAL DISTRICTS. By H. Maclean Wilson, M.D., B.Sc. With a Preface by T. Pridgin Teale, F.R.S. Second and Enlarged Edition (1896). 32 pp. 12 Illustrations. Price 3*d*. per copy; 2*s*. per doz.; 12*s*. 6*d*. per 100.

MOLE-DRAINING AND THE RENOVATION OF OLD PIPE DRAINS. By Douglas T. Thring, F.S.I. With 9 Illustrations (1920). Price 6*d*..

THE UTILISATION OF WHEY. 24 pp., with 2 Illustrations (1923). Price 1*s*.

The above can be obtained at the Society's House, 16 *Bedford Square, London, W.C.*1, *through any bookseller, or of Mr. JOHN MURRAY*, 50*a Albemarle Street, W.*1.

Copies of pamphlets sold at not less than One Shilling each are obtainable by Members of the Society at half-price on direct application to the Secretary.

COLOURED DIAGRAMS.

(Obtainable from Messrs. W. & A. K. Johnston, Ltd., Edina Works, Easter Road, Edinburgh.)

EIGHT DIAGRAMS REPRESENTING THE LIFE-HISTORY OF THE WHEAT PLANT (after Francis Bauer). With Explanatory Pamphlet by W. Carruthers, F.R.S.

THE POTATO DISEASE. By W. Carruthers, F.R.S.

[This application form, when filled up, should be addressed to the Secretary of the Society, 16 Bedford Square, London, W.C.1.]

Royal Agricultural Society of England.

FORM OF APPLICATION FOR MEMBERSHIP.

I ....
(State whether Mr., Mrs., or Miss).

of..

....

....

County in which Residence is situated ....

am desirous of becoming a {*Member* / *Governor*} *of the* Royal Agricultural Society of England, *and engage, when elected, to pay the Annual Subscription of* £† .... *and to conform to the Rules and Regulations of the Society until the termination of the year in which I shall withdraw from it by notice, in writing, to the Secretary.*

(*Signature*)..

Date..

Nominated by..

Elected at the Council Meeting held on...

....*Secretary.*

---

† The Council trust that Governors or Members who are disposed to give a larger annual Subscription than the minimum prescribed by the Bye-laws will be kind enough to do so, in order that the Society's operations may be maintained. The minimum Annual Subscription of a Governor is £5 (Life Composition £50), and of a Member £1 (Life Composition £15).

Ladies are admissible as Governors or Members equally with gentlemen.

Royal Agricultural Society of England,

16 BEDFORD SQUARE, LONDON, W.C.1

PRIVILEGES OF GOVERNORS AND MEMBERS.

FREE ADMISSION TO SHOWYARD.

The Society holds every year an Exhibition of Live Stock, Farm Produce, and Implements, to which and to the unreserved portions of the Grand Stands at the Horse Ring (if room), Dairy, and elsewhere, Members are entitled to free admission.

REDUCED RATES FOR ENTRIES AT THE ANNUAL SHOW.

Entries of Horses, Cattle, Sheep, Pigs, Poultry, Produce, &c., can be made by Members at reduced rates. For Implement exhibits the entry fee of £2 payable in addition to the charges for space is not charged when a partner of the firm is a Member of the Society. Firms and Companies may secure these privileges by the Membership of one or more of their partners.

SOCIETY'S JOURNAL AND OTHER PUBLICATIONS.

Every Member is entitled to receive, without charge, a copy of the Journal of the Society, each Volume of which contains articles and communications by leading authorities on the most important agricultural questions of the day, together with official reports by the Society's Scientific Advisers and on the various departments of the Show, and other interesting features. Copies of the Society's pamphlets, sold at not less than One Shilling each, are obtainable by Members at half-price on direct application to the Secretary.

LIBRARY AND READING ROOM.

The Society has a large and well-stocked Library of standard books on agricultural subjects, which have been catalogued and can now be borrowed by Members. A Reading Room is provided at which the principal agricultural newspapers and other periodicals can be consulted by Members during office hours (10 a.m. to 4 p.m.; Saturdays, 10 a.m. to 1 p.m.).

CHEMICAL PRIVILEGES.

The Society makes annually a considerable grant from its general funds in order that Members may obtain at low rates analyses of feeding stuffs, fertilisers, soils, &c., by the Society's Consulting Chemist (Dr. J. AUGUSTUS VOELCKER, Analytical Laboratory, 1 Tudor Street, London, E.C.4). Members may consult Dr. VOELCKER personally or by letter at a small fee.

VETERINARY PRIVILEGES.

Members can consult the Professors of the Royal Veterinary College, Camden Town, London, N.W.1, at fixed rates of charge, and they have the privilege of sending Cattle, Sheep and Pigs to the College Infirmary on the same terms as subscribers to the College.

BOTANICAL PRIVILEGES.

Reports can be obtained by Members from the Society's Botanist, Professor R. H. BIFFEN, F.R.S., School of Agriculture, Cambridge, on the purity and germinating power of seeds, and on diseases or weeds affecting farm crops, at a fee of one shilling in each case.

ZOOLOGICAL PRIVILEGES.

Information respecting any animal (quadruped, bird, insect, worm, &c.) which, in any stage of its life, affects the farm or rural economy generally, with suggestions as to methods of prevention and remedy in respect to any such animal that may be injurious, can be obtained by Members from the Society's Zoologist, Mr. CECIL WARBURTON, M.A., School of Agriculture, Cambridge, at a fee of one shilling in each case.

GENERAL MEETINGS OF MEMBERS.

The Annual General Meeting of Governors and Members is held in London in the month of December, during the week of the Smithfield Club Cattle Show. A Meeting is also held in the Society's Showyard in the summer.

ANNUAL SUBSCRIPTION OF MEMBERS.

The Annual Subscription of a Member is payable in advance on the 1st January of each year. Every candidate for admission into the Society must be proposed in writing by an existing Member. Forms of proposal may be obtained on application to the Secretary, at 16 Bedford Square, London, W.C.1.

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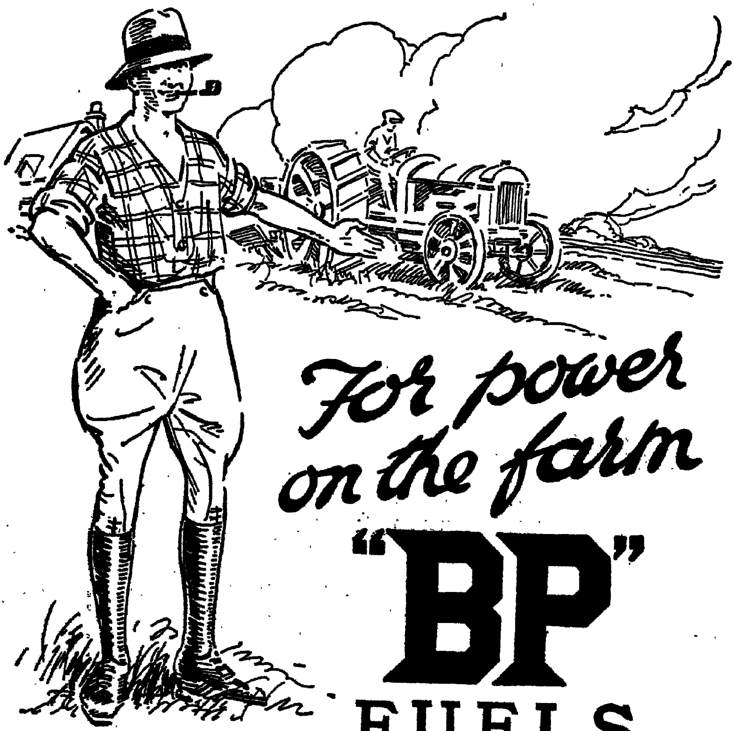

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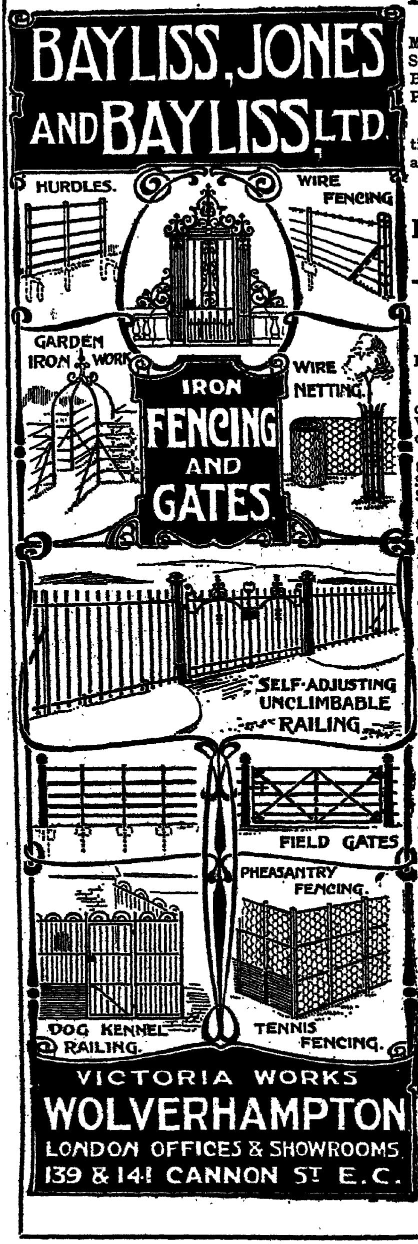

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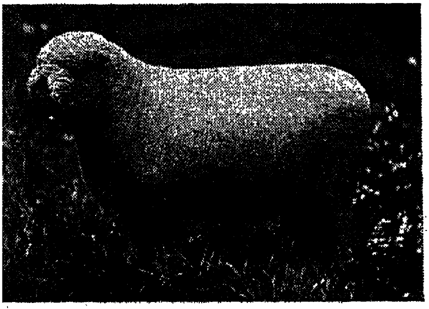

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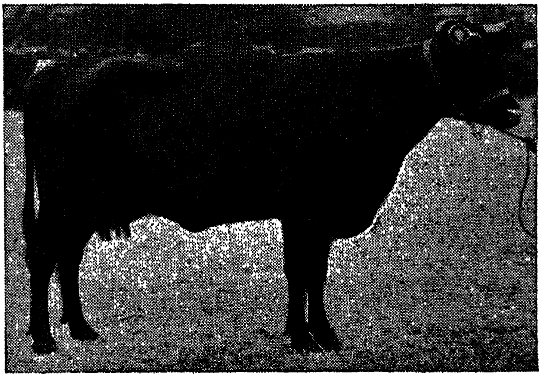

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